The Journal of the
American Medical Association

VOL. XXII. CHICAGO, MARCH 24, 1894. No. 12.

ORIGINAL ARTICLES.

APPENDICITIS OBLITERANS.

Read before the Chicago Academy of Medicine, March 16, 1894.

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The successful surgical treatment of peritonitis caused by infective lesions of the appendix vermiformis constitutes the most brilliant chapter of modern aggressive surgery. The surgeons have taught physicians by scientific research, as well as by lessons learned from clinical experience, that peritonitis, in the majority of cases, is a secondary affection, and that its successful treatment depends largely upon the detection and removal of the primary cause. The present large amount of knowledge concerning appendicitis and its complications is largely the result of the work of American surgeons. The European surgeons are slow in accepting the teachings and practice, as developed and promulgated in this country, but in the near future they will have to submit to the most convincing proof—the results of clinical experience. During the last five years so much literature on the surgical treatment of inflammatory affections of the appendix has accumulated that this subject has become somewhat threadbare and confusing. For a number of years it was customary for a certain class of abdominal surgeons to report the result of their annual work on ovariotomy; then it became the fashion to give the statistics of tubal surgery, but at the present time the appendix vermiformis is the favorite topic of discussion, and to it is assigned a liberal space of the medical press and the programs of medical societies, both large and small.

It appears to me that it would be more profitable in the future for this department of abdominal surgery to write less concerning individual experience, and elaborate more thoroughly upon a pathologic basis the conditions which demand surgical interference. The surgeon must bring more convincing proof than the simple recovery from the operation, viz.: The reasons for the necessity of operative intervention, in order to convince the mass of the profession of the correctness of the ground taken by a number of surgeons, that the appendix should invariably be removed when it is the seat of an infective lesion. There are exceptions to nearly all rules, and the surgery of the appendix vermiformis has not advanced sufficiently to enable us to lay down cast iron rules when and when not to operate. Pelvic surgery has been degraded by the modern *furor operativus*, and the same fate threatens the surgery of the appendix. The conscientious surgeon must bring his work in consonance with the pathologic conditions which he is expected to correct or remove. If it were my intention to report the result of my own work in the surgery of the appendix, I should certainly feel inclined to offer an apology in view of what has been presented by the medical journals, especially those of our country during the last five years, but as I propose to limit myself to the description of a special pathologic form of appendicitis, I am confident that I have opened up a field that will afford ample space for future investigations of a similar character and which will, in the course of time, furnish a foundation for accurate diagnosis and an improved technique.

I have, for a long time, been convinced that appendicitis is an infective disease, caused by pathogenic microbes which reside in the normal intestinal canal and exercise their specific pathologic properties in the appendix whenever the essential *locus minoris resistentiæ* is produced by other conditions. The anatomic location of the appendix is such that retention of its secretions is liable to occur, particularly in cases in which the lumen at the proximal end has become narrowed by congenital stenosis or antecedent affections of the cecal wall. From a bacteriologic aspect the appendix may be regarded as an open test tube, and the retained secretions a culture medium. I have but little doubt that future research will demonstrate that the most frequent microbic cause of appendicitis is the bacillus coli communis. Pus microbes undoubtedly enter largely into the etiology of mixed infections here as elsewhere. Intensity of the inflammation is determined more by the quantity than by the pathogenic quality of the microbes. The same cause which in one case produces a mild form of inflammation may in others determine speedy death from gangrene or perforation and acute sepsis.

I have performed at least 150 operations for lesions of the appendix, but instead of giving a detailed account of these it is my intention, in writing this paper, to call the attention of the profession to a pathologically and anatomically well-defined form of appendicitis that has heretofore not been separately described. For a number of years I have noticed in the examination of specimens removed from cases of recurring appendicitis, varying degrees of contraction of the lumen of the appendix, differing in extent from slight stenosis to complete obliteration. In recent cases I have invariably found the wall of the appendix more or less thickened at the seat of constriction. Similar observations have been made by other surgeons, but I have not seen anywhere special mention of this particular form of appendicitis. The *Medical Record*, July 15, 1893, alludes to a specimen described by Dr. Biggs, which had been removed from a man dying of chronic alcoholism. The appendix consisted of a small pouch about 3.1 ctm. in length, and beyond this a fibrous

cord 2 mm. in diameter, which, apparently as a result of an old inflammation, had been united by adhesions to the neighboring tissues. The effect of this appendicitis had been to cause a complete obliteration of more than one-half of the lumen of the appendix. Sections of the fibrous cord showed, under the microscope, unstriped muscular tissue, fibrous tissue and many small round cells. Fenger ("Remarks on Appendicitis," *American Journal of Obstetrics*, No. 2, 1893), has described a similar specimen. Nearly one-half of the appendix on the distal side was found obliterated. (Fig. 1. "Obliteration of Appendix on Distal Side." Fenger's case.) T. G. Morton ("Two Recent Cases of Excision of the Vermiform Appendix for Chronic Relapsing Appendicitis in the Interval," *Medical and Surgical Reporter*, Dec. 23, 1893) has recently removed an appendix for recurring inflammation in which obliteration had taken place on both sides. "It measured rather more than three inches in length; it was greatly distended near its middle, and the proximal and distal ends were thickened and swollen; a section showed total obstruction of the organ except its middle or distended portion, which was filled with about two drachms of very offensive pus." Lange, of New York, has also described several similar cases.

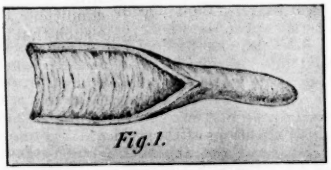


Fig. 1.

My attention has recently been called forcibly to this form of appendicitis, as within the short space of two months four cases have come under my observation. I have designated this form of appendicitis as appendicitis obliterans, because the most conspicuous pathologic condition presented by the specimens is an obliteration of the lumen by cicatricial contraction. The pathologic processes resemble very closely a similar condition in the terminal arteries designated here as arteritis obliterans. The patients presented before the operations a complexus of clinical symptoms which, when grouped together, will enable the surgeon to at least suspect, if not positively predict, this condition. I will briefly report the four cases of appendicitis obliterans which have recently come under my observation, and later utilize them as a text upon which to base some general remarks on the pathology of this form of appendicitis.

Case 1.—H. M. Stewart, aged 26; business, book-keeper; residence, Lyons, Kansas. Admitted into St. Joseph's Hospital, Sept. 30, 1893.

The patient states that his health had been fairly good until three years ago, when he suffered from an attack of "cramps in the stomach," and pain and tenderness in the ileo-cecal region. This attack lasted about eight hours. Similar attacks followed at intervals of two or three months, becoming more frequent until during last year they occurred every four to six weeks. The acute symptoms would, as a rule, subside in from six to fourteen hours, to be followed by a dull aching pain in the right iliac fossa accompanied by tenderness on pressure which would continue for ten days to two weeks when he would be able to resume his occupation, but more or less soreness and tenderness remained. The last attack which was unusually severe occurred in June. Operation was performed Oct. 2, 1893. The appendix was found behind the cecum directed inward and upward. It was adherent to the cecum and a loop of the ileum, mesenteriolum shortened and much thicker than normal. The organ when removed measured about three inches in length and presented a peculiar club-shaped appearance, the constricted portion being on the proximal side while the free end was bulbous. (I am indebted to Dr. Mellish for the illustrations in this paper). The wall of the free bulbous portion was much thickened. About one-third of the lumen on the proximal side was completely obliterated. The excluded part contained a viscid fluid, of a brownish color. The temperature ranged between 99 and 100 degrees F., for four days when it reached 101½ degrees F., on the fifth day, after which it became normal. The patient left the Hospital at the end of the fourth week.

Case 2.—J. Barzhof, aged 25; German-American; dentist; residence, Manitowoc, Wis. He entered St. Joseph's Hospital at the request of his attending physician, Dr. Pritchard, Nov. 4, 1893. Operation on the following day. General health fair. In the summer of 1888 he was taken with the first attack in the form of severe vomiting, diarrhea and intense pain in the abdomen, radiating upward and downward to the right of the median line. The first seizure lasted about four days. Similar attacks occurred about four times every year. In the spring of the present year it appeared that the attacks were provoked by change in diet. Pain often more severe when stomach was empty. Dietetic treatment had no effect in preventing recurrence of the difficulty. No constipation. Last and most severe

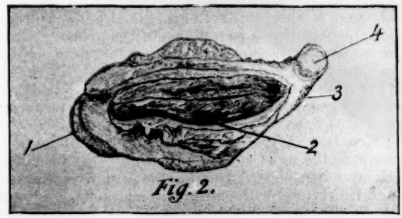


Fig. 2.

Appendix laid open from tip to near proximal end: Mrs. W.; Nov. 13, 1893. 1. Bulbous extremity. 2. Everted exceedingly vascular mucous membrane. 3. Obliterated portion. 4. Central part showing location of obliterated lumen.

attack about September 20. This was preceded by a somewhat hard swelling extending from umbilicus to the right inguinal region which was followed by a severe chill, vomiting, diarrhea and the characteristic sharp lancinating pain more severe in the ileo-cecal region. Highest temperature 102 degrees F. The pain and tenderness in the ileo-cecal region never disappeared completely after this and were relieved only by rest in the recumbent position. On opening the abdominal cavity the appendix was seen at once. It measured at least five inches in length and was firmly attached to the caput coli and extended behind the colon. The distal bulbous end was small. A similar bulbous expansion was found near its attachment to the cecum. Between these bulbous expansions the organ was not larger than a small lead pencil, anemic and very dense. Owing to the length of the mesenteriolum it had to be tied in four sections. The glands in the vicinity were found much enlarged, some of them had attained the size of an almond but none of them presented any evidences of caseation. Examination of the specimen after its removal showed that nearly the entire lumen had been obliterated, only a small portion on the distal and proximal side remaining patent. The open spaces contained a catarrhal viscid secretion of a brownish color. The temperature in this case never reached 100 degrees F., and the patient left the Hospital at the expiration of four weeks.

Case 3.—Mrs. E. A. West, aged 28, American, housewife; residence, Decatur, Ill. Entered St. Joseph's Hospital at the suggestion of the family physician, for the purpose of having the appendix removed for a recurrent inflammatory affection in the right iliac region of long standing. Her mother died of pulmonary tuberculosis when patient was only six months old, and the latter has always been

in delicate health. Married two years; no children. Six years ago was taken suddenly ill with symptoms indicating peritonitis. The pain was diffuse and of a grinding character. The acute symptoms subsided in five or six hours, but she was confined to the bed for four days. The tenderness in the right iliac region remained for a number of days. Later, in the same year, had a similar attack and during each of the succeeding four years the same experience was repeated from two to four times. Beginning with September, 1892, she had an attack each month until February, 1893, six in all. The attack in February was so severe that a physician was called for the first time. As in all previous attacks, pain passed off in a few hours but patient was confined to bed for four or five days, and tenderness persisted for as many more days. She was never aware of the exact location of tenderness until she was examined by her physician. The last and most severe attack occurred in July of the present year, which lasted twelve days. She was attended by Dr. Bumstead, who recognized the difficulty and advised a radical operation. During the last attack the temperature reached 103 degrees F. Vomiting and nausea were not conspicuous symptoms during any of the attacks. In the beginning of the acute exacerbations the pain was generally diffuse; later, localized in the ileocecal region. Hot applications always afforded prompt relief, and she believes that they were the means of cutting short several of the attacks. When examined after her admission into the Hospital the appendix could be felt as a firm cord, and tenderness was limited to this structure. Operation November 14. In this case the appendix was directed downward and inward toward the pelvis; adhesions old and firm. Mesenteriolum very short and adherent to appendix. It was tied in several sections. About one-fourth of the lumen on the proximal side was obliterated and the corresponding portion of the appendix transformed into a firm fibrous cord. (Fig. 4.) Beyond this obliterated part the lumen was much dilated, and subdivided into two unequal portions by a thin partition composed of cicatricial tissue. Wall of appendix much thickened and dense. Both compartments contained inspissated pus which resembled liquefied caseous material. Lymphatic glands in the vicinity of the appendix much enlarged and exceedingly vascular. Patient recovered without an untoward symptom. A small stitch abscess at the end of a week gave rise to a slight elevation of temperature, and slightly retarded the healing of the wound.

Case 4.—J. H. Croskey, aged 33, American; farmer by occupation; residence Farmer City, Ill. Entered St. Joseph's Hospital Dec. 5, 1893. Family history good. Patient was never sick until November, 1891, when after a hard day's work, he experienced a dull pain in right side and lower part of abdomen. He was able to sit up but could do no work for three days, when all symptoms passed away. There was no nausea or vomiting; a little tympanites and constipation. He attributed the difficulty to a strain produced by lifting. The second attack in April, the following year, commenced with a sudden, sharp, intense pain confined to the right side in the region of the appendix. The acute symptoms continued for one month, during which time he was confined most of the time to bed, but at any time, if assisted to his feet he could walk with the aid of a cane. During the second month he improved sufficiently to resume his work. A sense of soreness and tenderness in the ileocecal region remained. Vomiting occurred on the evening of the second day. Tympanites absent. Diagnosis of appendicitis was made on the fourth day by the attending physician. Third attack February, 1893, resembled the second in every respect. There remained not so much tenderness on pressure, as a soreness or pain from a slight jar, as would happen when riding in a buggy when the wheel struck a stone. Could not stand perfectly erect, but would incline the body slightly forward and to the right with feet about twelve inches apart. Examination before operation revealed tenderness in the region of the appendix on deep pressure. Operation Dec. 8, 1893. The appendix was readily found as it was directed forward and to the right, occupying a groove in the caput coli. During its separation from the cecum I expected every moment to make a rent in the bowel as the peritoneal coat of the latter appeared to be absent and the muscular coat very much attenuated. The dissection was made slowly and carefully and mainly with the aid of blunt instruments. The mesenteriolum was incorporated so firmly in the adhesions that ligation was rendered superfluous. A number of bleeding points were ligated. The appendix when removed measured three inches in length, and on slitting it open it was found that about one-third of its lumen on the distal side was completely obliterated. (Fig. 5.) The distal end tapered into a sharp point. Wall of remaining portion only slightly thickened. Mucous membrane intensely congested. At a point about half an inch distant from obliterated part, both the wall of the appendix and its lumen showed changes which indicated the first stages of the formation of a circular stricture. Mucous membrane much thickened.

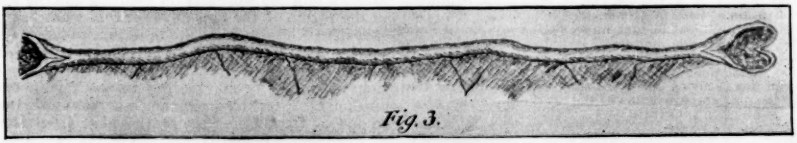


Fig. 3.

Obliterated appendix showing small pervious spaces at each end, the intervening part converted into a solid cord.

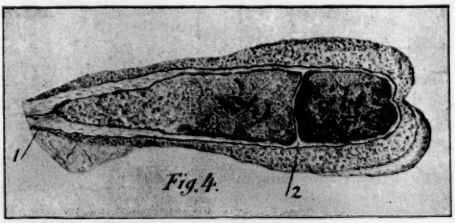


Fig. 4.

1. Proximal end completely obliterated. 2. Narrow stricture dividing completely the remaining lumen into two unequal portions; great thickening of wall near distal end.

In this case the second attack of appendicitis produced an intense localized plastic peritonitis which gave rise to the extensive and firm adhesions of the appendix to the cecum, rendering the operation one of great difficulty. During the dissection I feared that a perforation at the tip of the appendix had taken place, followed by rupture of a small abscess into the cecum, and on this account anticipated injuring the wall of the bowel. Examination of the specimen, however, proved conclusively that this had

not occurred and that the adhesions were caused by a plastic peritonitis without perforation.

Since writing this paper the following interesting case of appendicitis obliterans has come under my observation in the clinic of Rush Medical College:

Case 5.—Jas. McChane, occupation, farmer, aged 35 years, married; mother died of phthisis. Personal history: Never a very robust man. Had "ague" eight years ago lasting three months. Regular in habits; no venereal history.

In August, 1893, the patient, while threshing wheat, was attacked with a severe paroxysm of pain in the right lumbar region. He had to stop work but did not go to bed. He has not been able to do a day's work since, although he has not been confined to his bed. The pain is always present, a dull aching pain, and the least exertion aggravates the difficulty and tenderness. The pains are always referred to the same point, a few inches to the right and below the umbilicus.

The bowels have been constipated and the patient resorts to the use of enema to relieve them. The appetite is very poor and he has been steadily losing flesh. When admitted the patient's temperature is normal in the morning with a slight evening rise.

On physical examination, a point of tenderness found corresponding to McBurney's point, with some induration and fixation of head of cecum.

From the clinical history and existing symptoms I was able to make the diagnosis of appendicitis obliterans before the operation. The operation was performed in the clinic. Photograph of specimen herewith shown. The distal end was patulous and is slit open, showing interior view with the obliterated portion at the proximal end.

Appendix, about one-third natural size.

GENERAL REMARKS.

The cases just reported present many clinical features in common. The age of the patients varied from 25 to 38. Four were males and one female. In all of them the acute exacerbations were characterized by symptoms of peritonitis of varying intensity. Swelling does not appear to have been a constant feature, either during or after the acute attack. In most instances the pain was at first diffuse or referred to epigastric region; later, localized in the ileo-cecal region. In most of the cases, tenderness in the region of the appendix remained a long time after the subsidence of the acute symptoms, or remained as a permanent condition. In all of the cases I was able to produce pain on making deep pressure directly over the appendix. The point of tenderness therefore varied according to the location of the appendix. The febrile disturbance during the acute attack appears to have been moderate and of short duration. Nausea and vomiting were not constant symptoms. Tympanites depended on the extent of the peritoneal involvement. The most constant and characteristic feature was recurrence of the acute exacerbations which set in from once a year to every few weeks. As a rule, the attacks became gradually more frequent. In two out of the four cases, some of the most important symptoms remained in a masked form during the intermissions. This was noted particularly in the cases in which the appendix was obliterated on the proximal side. I should suspect, very strongly, appendicitis obliterans in cases of recurrent appendicitis in which no complete intermission takes place during the interval between the acute attacks, and no appreciable swelling can be found in the region of the appendix. From what has been said it will be seen that the most conspicuous symptoms of this form of appendicitis are: 1, short duration and moderate intensity of the acute exacerbations; 2, slight or no swelling in the region of the appendix; 3, recurrence of acute attacks varying in frequency from a year to several weeks; 4, persistence of some soreness and tenderness in the part affected during the intermissions.

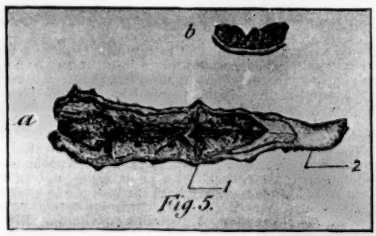
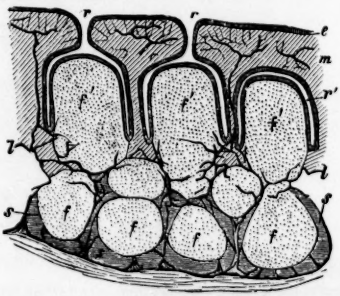


Fig. 5.

a—Appendix laid open from proximal end as far towards distal end as it is pervious, and a little farther. *b*—Transverse section of same, showing bulging of the mucous membrane.
1. Narrow circular strip of appendix much thickened, lumen much contracted; early stages of circular stricture. 2. Distal obliterated end tapering into a sharp point.



Appendix of rabbit, lymphatics injected. *f f*—Outer follicles with lymphsinus, *s s*. *f' f'*—Inner follicles. *l l*—Lymph vessels which leave the lymph follicles. *m*—Mucous membrane with dilated glands; *e*—their epithelial cells; *r r*—their recesses. *r'*—Recess; point of entrance does not correspond with level of section (Orth).

Etiology.—I have already made the statement, in the introductory remarks, that this as well as other forms of appendicitis is caused by pathogenic microbes, and therefore regard all acute inflammatory affections of the appendix as infective lesions. A glance at the anatomy of the appendix, as well as an examination of the most constant pathologic conditions, will corroborate the correctness of this assertion. The appendix is richly supplied with lymphatic vessels, and it is through these that infection most frequently takes place. Orth (*Cursus der Normalen Histologie*, etc., Berlin, 1878,) has fully described the lymphatic structures in the appendix of the rabbit, and Morris has recently alluded to the lymphatic channels of this structure as a route of infection in man.

It is not difficult to understand that an ordinary

catarrhal inflammation would render the mucous membrane permeable to the passage of pathogenic microbes, rendering it possible for them to pass from the lumen of the appendix into the lymphatics, the essential cause of the inflammation thus coming in direct contact with every anatomic constituent of the wall of the appendix, its serous investment and even the free peritoneal cavity without any ulceration or perforation. The distribution of the microbic cause through the lymphatic route has been demonstrated by many postmortem examinations and appendices removed by operative treatment. Minute miliary abscesses have often been found in the wall of the appendix and underneath the peritoneal coat, and usually in locations formerly occupied by lymphatic channels. There can be no question that the exciting cause can often be traced to a trauma, indiscretion in diet and exposure to cold. In none of the cases of appendicitis obliterans did I find a foreign body or an enterolith. In Fenger's case in which the obliteration was on the distal side, two grape seeds, one fecal concretion the

examinations. He found partial or complete obliteration in 25 per cent. of these cases. He believes that this change is due to involutionary changes in the majority of cases. One reason for entertaining this idea is that this condition of the appendix is met with more frequently in persons advanced in years. The influence of age is shown in the following table:

1	decennium	4 per cent.
2	"	17 "
4	"	27 "
5	"	36 "
6	"	53 "
7	"	58 "

In favor of the inflammatory origin of appendicitis obliterans it can be said that appendicitis is a comparatively rare affection in children, and that the longer the person lives the greater the liability to suffer from an attack. I have no doubt that obliteration of the appendix occasionally occurs as a congenital condition. Atresia of the lumen of this organ is probably more liable to occur during intra-

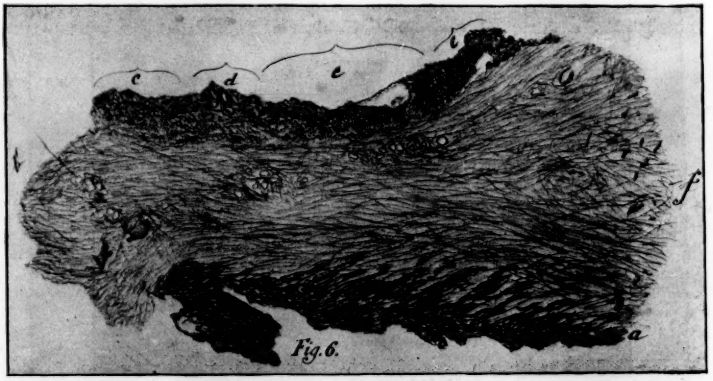


Fig. 6.

Appendix (Stewart). + section through cicatrix, one-half circumference. The upper border of drawing represents the mucous surface—× 25 diameters. *a*—Muscular tissue. *b*—Empty glandular spaces. *c*—Granulation tissue. *d*—Remnants of mucous membrane. *e*—Fibrous and granulation tissue. *f*—Cicatricial tissue.

size of a split pea, and the husk of an oat were found in the appendix. In the event of incarceration of a foreign substance or fecal concretion on the distal side of the obliteration, I should expect more pronounced symptoms during the intervals between the acute attacks, and apprehend great danger of perforation with all its immediate disastrous consequences. In only one case did the inflammation result in suppuration on the distal side of the obstruction, and in this case the pus had become inspissated. In all the other cases the excluded part of the lumen of the appendix contained from one to a few drops of viscid fluid stained a brownish color. It is evident that a plastic peritonitis in the vicinity of the appendix can be produced by pyogenic microbes without visible pus within the appendix or its wall.

Ribbert (*Virchow's Archiv*, 1893,) wished to ascertain the frequency with which the appendix vermiformis undergoes obliteration, and for this purpose noted the condition of this organ in 400 postmortem

uterine life than the same condition in other parts of the gastro-intestinal canal.

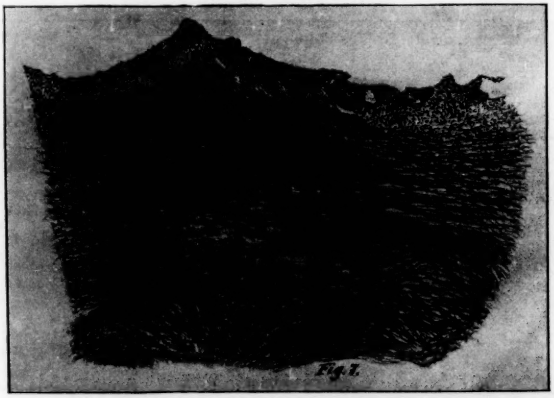
Pathology and Morbid Anatomy.—Ranvers (*Zur Pathologie and Therapie der Perityphlitis Deutsche Med. Wochenschrift*, 1891, No. 5,) found the appendix completely obliterated in thirteen postmortem examinations. All of the specimens showed evidences of circumscribed plastic peritonitis. He believed that in some of these cases perforation had taken place, and that the disease ultimately cured itself. In one specimen he found a small fecal concretion, surrounded by a capsule of cicatrical tissue. The most striking morbid changes in obliterating appendicitis are found in the different tissues of the organ, and these are directly concerned in the gradual and progressive obliteration of its lumen. A stricture of the appendix, like that of any other hollow organ, may be brought about by: 1, destruction of the mucous membrane by ulceration; 2, infiltration, thickening and contraction of the muscular coat; 3, prolonged cica-

tricial contraction of exudates upon its serous covering; 4, or, in consequence of a combination of two or more of these causes. In a former communication on relapsing appendicitis, ("A Plea in Favor of Early Laparotomy for Catarrhal and Ulcerative Appendicitis, with the Report of Two Cases," JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 2, 1889.) I described an appendix in which the mucous membrane was extensively ulcerated. " . . . . On inspection of the mucous membrane lining it, an oblong ulcer was discovered near the middle and opposite mesenteric attachment. The ulcer measured about half an inch in length, and a quarter of an inch in width. Its greater diameter corresponding to the long axis of the appendix. The margins of the ulcer were regular in outline and not undermined. It presented no evidences of repair. Its greatest depth corresponded to its center. The whole mucous membrane was exceedingly vascular and much thickened, the submucous infiltration being uniform over its entire area. A transverse section of the appendix through the center of the ulcer, examined under the microscope, showed that the entire thickness of the mucous membrane and part of the muscular coat were destroyed by the ulcerative process, and that the remaining thickness of the wall, as far as the peritoneum, was infiltrated with embryonal cells and leucocytes which were closely grouped together in the connective tissue reticulum. The submucous tissue and part of the muscular coat were similarly infiltrated throughout." The healing of such an ulcer would naturally produce stenosis and eventually complete obliteration of the lumen of the appendix. Such an event would presuppose subsidence of the infective inflammation, the lining of the floor of the ulcer with active granulations and the transformation of embryonal into cicatrical tissue endowed with the characteristic intrinsic tendency to progressive contraction. Such a mode of obliteration is shown by illustrations, Figs. 6, 7 and 8. The sections were taken from near and under the obliterated part of the appendix removed from Mr. Stewart.

Fig. 6 represents a section through a portion of the circumference of the appendix near the occluded part. Most of the spaces shown in the scar tissue were evidently formerly occupied by submucous glands. A few of them represent lumina of blood vessels.

The mucous membrane is almost completely destroyed, only a few remnants at *d* remaining. The place formerly occupied by the mucous membrane is now the seat of active cell production from the submucous connective tissue. The numerous vacant spaces in the fibrous tissue are empty glandular and lymph spaces, in which the parenchyma of gland tissue was destroyed, either by the infective inflammation or later by pressure from cicatricial contraction. The inflammation started in this case either in the mucous or submucous tissue, and extended towards the periphery of the organ, as indicated by the pathologic changes. The peritoneum, with the exception of the adhesions, had undergone but slight textural changes, while the tissues underneath were not much affected.

Fig. 7 represents the same section under higher power. It shows the remnants of glandular tissue and the almost complete destruction of the epithelial cells lining the interior of the appendix, and an abundance of scar tissue taking largely the place of muscular tissue. (Fig. 8). This section was taken from near the distal extremity of the excised appendix where the mucous membrane was least affected, and demonstrates that the primary lesion commenced some distance from the terminal end of the lumen, and that the process of obliterating cicatrization extended from here in both directions. It also illustrates that the fibrous thickening of the wall takes place largely by proliferation of the submucous connective tissue. It appears from these illustrations that while the primary microbic cause in such cases acts with sufficient intensity to destroy the mucous membrane, producing more or less suppuration, the destruction of tissue is limited to the epithelial lining and perhaps the submucous glandular and lymphoid tissue; when it comes in contact with the connective tissue its pyogenic function is limited and an abundance of



Same section as represented in drawing No. 6, showing remains of mucous membrane mingled with granulation tissue—× 75 diameters

granulation tissue is formed, which not only limits infection but likewise brings about obliteration of the lumen which in many instances assumes a progressive character. The adjacent mucous membrane not only suffers from continual exposure to the primary infective cause, but also from impairment of nutrition from gradually increasing cicatricial contraction. It is probable that in this way obliteration of the entire lumen would be finally accomplished, and that this termination is most likely to occur if the obliterating process begins in the distal part of the appendix.

I am, however, inclined to believe that in the majority of cases the obliterating appendicitis has a deeper and more serious origin in the direction of the lymphatic glands and channels. In such instances the mucous membrane at some point furnishes the necessary infection-atrium through which the microbes enter the lymphatic channels resulting finally in an interstitial inflammation, with more or less involvement of the peritoneal coat. The acute exacerbations in this variety of appendicitis obliterans are more intense, because the primary seat of infection is nearer the peritoneal coat, and the route of infection towards it more direct. The interstitial inflammation may result in the formation of small intermural abscesses which are more likely to reach the mucous than the serous surface. The mucous lining of the lumen of the appendix becomes implicated by the inflammation extending from glandular structures and connective tissue underneath it, and later from cicatricial contraction. Case 4 furnishes a good illustration of this type of obliterating appendicitis. The clinical symptoms in this case pointed to severe circumscribed plastic peritonitis, and the pathologic conditions revealed at the time of operation extensive and very firm adhesions. The appendix removed was occluded for about an inch at the distal extremity. The non-occluded portion showed the presence of catarrhal inflammation with the characteristic bulging of the mucous membrane after the appendix was laid open.

Fig. 9 represents a section through one-third to one-half of the entire circumference of the obliterated portion of the appendix. The section includes only a small part of the peritoneum which was very much thickened and the subserous vessels dilated.

As compared with the other illustrations the section through the obliterated part shows fewer empty glandular spaces and more blood vessels. The glandular structure was destroyed by the inflammation at an early date and not starved out, as was the case in the former instance. The former lumen of the appendix is here indicated by a mass of embryonal tissue in various stages of transformation into connective tissue. Reduction in the size of the obliterated part of the appendix was brought about in part, at least, by constriction of the peritoneal adhesions.

Fig. 10 represents the appearance of the tissues in a section near the obliterated part. At *a*, the superficial glands remain while in close proximity to it at *b*, the epithelial lining and glands are destroyed and their places are occupied by granulation tissue. The submucous tissue is again the seat

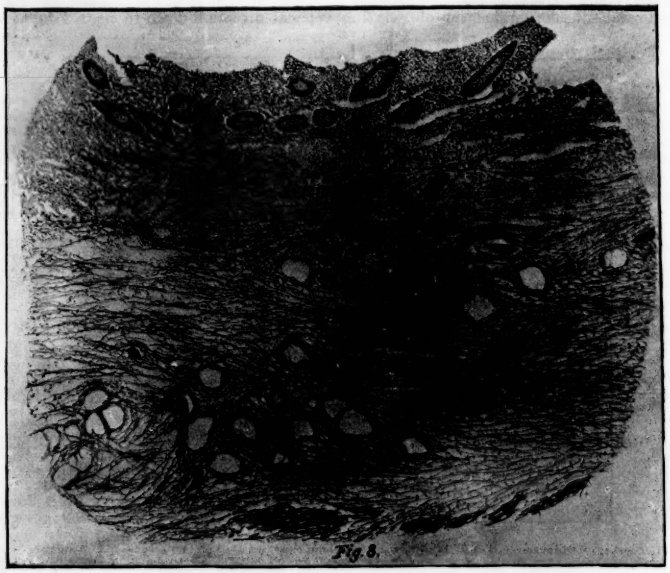


Fig. 8.

Showing remnants of mucous membrane with granulation tissue. At lower edge is shown a few muscle fibers. × 75 diameters; + section. Peritoneal surface not shown.

of active tissue changes, especially under the mucous membrane at *a*. The continuance of inflammation at the proximal end of the obliterating process, is indicated further by the presence of an extravasation of blood at *f*, and the masses of embryonal cells near the muscular coat at *g*. The thickening of the wall of the appendix is most marked during the acute exacerbations and in the excluded part. In the obliterated part the diameter of the organ is gradually diminished until it is transformed into a firm solid cord while its length, owing to adhesions, is often elongated instead of undergoing shortening (Case 2).

Among the cases which I have reported there is no instance of obliteration from cicatricial contractions of peritoneal adhesions alone, nor have I been able to find such a case in literature; but that such an occurrence is possible we know from analogy. In Case 4, we have reason to assume that the extensive and firm peritoneal adhesions aided the obliterating process. In reference to the contents of the excluded portion of the appendix we find that in two cases it consisted of a small quantity of viscid fluid devoid of odor and stained a brownish color, while in one case the cavity contained inspissated pus. In Morton's case it contained two drachms of fetid viscid material. In distal obliteration the proximal patent lumen usually contains the characteristic catarrhal secretion. One of the interesting pathologic conditions attending proximal obliteration which attracted my attention is the implication of the lymphatic glands in proximity to the vermiform appendix. In such cases the escape of septic material into the intestinal canal is prevented by the occlusion, and indefinite accumulation is prevented only by the passage of the products of the septic inflammation through the lymphatic channels. In this way lymphangitis and lymphadenitis, usually of a non-suppurative type, are produced. I found more or less enlargement of the lymphatic glands in all cases in which the product of the inflammation was thus imprisoned. In Cases 2 and 5 a number of lymphatic glands the size of almonds were found. The operative removal of such glands is superfluous as the removal of the depot of infection will be promptly followed by resolution. The great thickening of the wall of the appendix in the part excluded must be attributed, in part at least, to the vain attempts of the organ to evacuate its contents.

Operative Technique.—The operation performed in these cases for the removal of the appendix, as in other forms of relapsing appendicitis, was in all essential points the same as described in my paper referred to above. The abdominal incision was made from a point half way between the anterior superior spinous process of the ilium and the umbilicus in a vertical direction down to near Poupart's ligament. The cecum was used as a guide to the appendix. The free abdominal cavity was protected by sterilized gauze during the isolation and removal of the appendix. The mucous membrane of the stump was cauterized with pure liquid carbolic acid, the surplus acid carefully removed with a gauze sponge, the stump dusted with iodoform and buried by three or more Lembert sutures of fine silk, which included the serous and muscular coats of the cecum on each side. The line of suturing was made in accordance with the conformation of the cecum, in a direction which would cause the least tension, and without causing any unnecessary encroachment upon its lumen. I look upon this method as the ideal one in disposing of the stump, as it most efficiently guards against the two most serious after complications in such cases—infection and formation of a fecal fistula. I appreciate more and more the difficulties which so

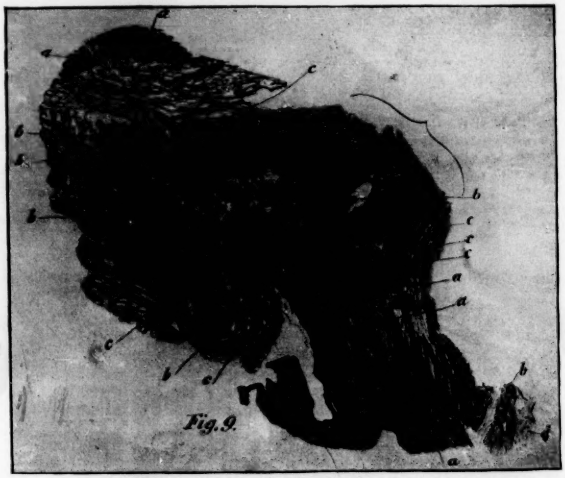


Fig. 9.

Appendix (J. H. Croskey). Distal end, occluded, + section through about one-third of its circumference—× 25 diameters. *a*—Non-striped muscle fibers. *b*—Blood vessels. *c*—Collections of round or oval cells. *d*—Peritoneum. *b c*—Granulation tissue partially converted into connective tissue.

often confront the surgeon in performing this operation. Although I have had but one death in about thirty-five operations, for recurring appendicitis, I am always prepared to meet unexpected complications and inform the patient of the possible risks which he assumes in subjecting himself to the operation. As in none of the cases of obliterating appendicitis pus was found outside of the appendix, flushing and drainage were dispensed with. The external incision was invariably closed by four rows of sutures, the first of catgut including the peritoneum only, the second of the same material embracing the fascia of the external oblique, the third of silkworm gut including all of the tissues, and, finally, the fourth of very fine catgut in the form of a continued suture, to bring the skin in accurate contact. As I have observed a number of cases of ventral hernia following operations upon the appendix in my own, as well as in

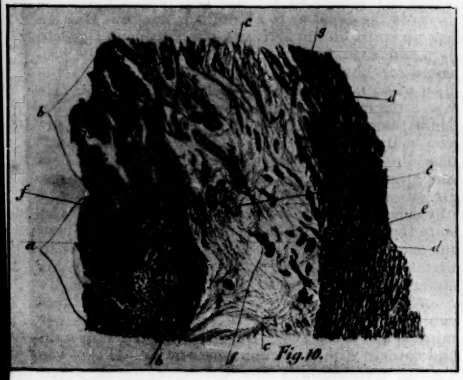


Fig. 10.

Appendix (J. H. Croskey). Proximal end; + section through about one-sixth of its circumference— × 25 diameters.
a—Glands. *b*—Granulation tissue, the deeper portion more or less fibrous. *c*—Connective tissue. *d*—Non-striped muscle fibers. *e*—Blood vessels. *f*—Extravasated blood. *g*—A collection of cells like granulation tissue cells. The peritoneum is not shown.

the practice of other surgeons, I am exceedingly anxious to prevent this occurrence by bringing the most important tissues in accurate contact by separate rows of the buried suture. I never permit patients to leave the bed in less than four weeks, and I advise them to wear a well-fitting bandage for six months as an additional safeguard against this exceedingly undesirable remote complication.

CONCLUSIONS.

1. Appendicitis obliterans is a comparatively frequent form of relapsing inflammation of the appendix vermiformis.

2. It is characterized by progressive obliteration of the lumen of the appendix, by the gradual disappearance of the epithelial lining and glandular tissue, and the production of granulation tissue from the submucous connective tissue which by transformation into connective tissue and cicatrical contractions starves out remnants of glandular tissue, and finally results in obliteration.

3. The obliterating process manifests a progressive tendency, and may finally result in complete destruction of all glandular tissue and obliteration of the entire lumen.

4. The incipient pathologic changes occur either in the mucous membrane of the appendix, in the form of superficial ulceration, or as an interstitial process following lymphatic infection.

5. The most constant symptoms which attend this form of appendicitis are relapsing acute exacerbations, of short duration, moderate or no appreciable swelling at the seat of disease, and persistence of soreness and tenderness in the region of the appendix during the intermissions.

6. The process of obliteration may begin at the distal or proximal end, or at any place between, or it may commence simultaneously, or in succession at different points.

7. Obliteration on the proximal side gives rise to retention of septic material which finds an outlet through the lymphatics giving rise to non-suppurative lymphangitis and lymphadenitis.

8. Circumscribed plastic peritonitis is an almost constant concomitant of appendicitis obliterans, and hastens the process of obliteration.

9. Complete obliteration of the lumen of the appendix results in a spontaneous and permanent cure.

10. In view of the prolonged suffering incident to a spontaneous cure by progressive obliteration, and the possible dangers attending it a radical operation is indicated, and should be resorted to as soon as a positive diagnosis can be made.

CLINICAL HISTORY OF THE CASE OF PRESIDENT JAMES ABRAM GARFIELD.

BY ROBERT REYBURN, A.M., M.D.

PROFESSOR OF PHYSIOLOGY AND CLINICAL SURGERY MEDICAL DEPARTMENT HOWARD UNIVERSITY, WASHINGTON, D. C., AND ONE OF THE ATTENDING SURGEONS IN THE CASE OF PRESIDENT GARFIELD.

I

ASSASSINATION OF PRESIDENT GARFIELD.

On the morning of July 2, 1881, President Garfield accompanied by Secretary Blaine drove up to the B Street entrance of the Baltimore and Potomac depot, Washington, D. C., intending with a party composed of members of his family, Cabinet and personal friends, to take a pleasure trip through the New England States. At 9:30 A.M. President Garfield and Secretary Blaine were walking across the ladies' reception room on their way to take the train, when a pistol shot was heard, which was immediately followed by a second report. There was a rush of those who were present to the reception room, where the President was found lying on the floor with blood streaming from two wounds, one a slight flesh wound of the right arm, and one of the right side of the body. The President turned at the first shot, and fell on his knees at receiving the second shot. The first ball from the assassin's revolver struck the upper portion of the right arm inflicting a slight flesh wound. The second bullet entered the right side of the back, four inches to the right of the spinal column, and on a level with the twelfth, or lowest of the dorsal vertebræ, and passing at first forwards, fractured the eleventh and twelfth ribs, then being deflected to the left, passed through the body of the first lumbar vertebra in an oblique direction to the left, and emerging thence,

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passed behind and below the pancreas, where it was found at the postmortem examination. The second ball in its course penetrated some of the branches of the mesenteric arteries and grazed the splenic artery.

The President was laid upon the floor until a mattress could be procured, and he was at once removed to a room in the second story of the depot; when he turned deathly pale, and soon after he was carried up stairs he vomited. The assassin attempted to run out of the Sixth Street door of the depot, but for some reason turned back and was arrested by Officers Scott and Kearney. The President's eldest son was with him at the time he was shot as well as Secretaries Blaine, Hunt and Lincoln, and Postmaster General James.

Dr. Smith Townshend, the district Health Officer was the first physician who came to the assistance of the President. He arrived about four minutes after the shooting, and states that he found him lying upon the floor of the depot, surrounded by an immense throng of people. He was in a fainting condition, and apparently dying. Dr. Townshend administered a stimulant, and by his orders he was removed upstairs. Immediately after this Drs. Purvis and Bliss arrived at the depot.

Secretary Blaine came out of the reception room following a man, and calling, "Rockwell! Rockwell! Where is Rockwell?" The man was seized by Officer Kearney, and Mr. Parks, the depot policeman, and proved to be Charles J. Guiteau.

Secretary Blaine was not going with the party, but came down to bid the President good-by. He said: "The President and I were walking arm in arm toward the train. I heard two shots, and saw a man run. I started after him, but seeing he was caught just as he got out of the room, I came to the President, and found him lying upon the floor. The floor was covered with the President's blood." The weapon used by the assassin was a five chambered revolver of the English bulldog pattern, with an ivory handle, and was about seven inches long. This is a weapon of strong propulsive power, and experiments made with a similar weapon during Guiteau's trial showed that it had power enough to penetrate a two inch plank at a distance of one hundred feet. When arrested Guiteau said: "I did it, and want to be arrested. I am a stalwart and Arthur is President now. I have a letter here I want you to give to General Sherman; it will explain everything. Take me to the police station."

Officers were sent to the police headquarters, by order of those around the President, to get the name of the assassin. He very willingly wrote his name and address on a sheet of paper, as follows:

"CHARLES GUITEAU,
ATTORNEY-AT-LAW,
CHICAGO, ILL."

The following letter was taken from the prisoner's pocket at police headquarters, showing conclusively the intention to kill the President:

July 2, 1882.

To the White House:

The President's tragic death was a sad necessity, but it will unite the Republican party and save the Republic. Life is a flimsy dream, and it matters little when one goes. A human life is of small value. During the war thousands of brave boys went down without a tear. I presume the President was a Christian, and that he will be happier in Paradise than here. It will be no worse for Mrs. Garfield, dear soul, to part with her husband this way than by natural death. He is liable to go at any time, anyway. I had no ill-will towards the President. His death was a political necessity. I am a lawyer, a theologian and a politician. I am a stalwart of the stalwarts. I was with General Grant and the rest of our men in New York during the canvass. I have some papers for the press which I shall leave with Byron Andrews and his co-journalists at 1420 New York Avenue, where all the reporters can see them. I am going to the jail. CHARLES GUITEAU.

On the morning of July 2, 1881, at about 9:45 A.M. whilst in my office, I was suddenly summoned by a messenger from Dr. D. W. Bliss, who informed me that President Garfield had been shot by an assassin, at the Baltimore and Potomac depot, and requesting my immediate assistance. At first I refused to go, being incredulous, but after a few moments' consideration, I deemed it advisable to go and see for myself if there was any truth in the story, and drove rapidly in the direction of the depot. I was soon certain that something terrible had just happened. From all directions I could see people hastening towards the depot as to a common center. Hastening up stairs on my arrival I saw President Garfield lying on a mattress, which had been hastily procured for him, and which had been placed on the floor of a room in the second story of the depot. He was lying in the northeast corner of the room when I first saw him. I asked him, "Mr. President, are you badly hurt?" He answered: "I am afraid I am." The President was deathly pale, almost pulseless and apparently dying from internal hemorrhage. Dr. Bliss was present, surrounded by a number of physicians, and was evidently recognized by all who were there as in full charge of the case. The following account of the condition of the President, when first seen by Dr. Bliss is a verbatim copy of his statement made to me at the time, and immediately recorded by me in the note book of the case: "I recognized a very feeble pulse of about forty beats per minute, and a marked pallor of the face; skin cold and covered with a clammy perspiration. There was sighing respiration which was slow, being about twelve to fourteen per minute. The lines of expression of the face were changed, and evidences of his having recently vomited were apparent. I then learned from Dr. Smith Townshend who had preceded me, that he had administered one ounce of brandy and one drachm of aromatic spirits of ammonia to the President. I then proceeded to examine the wound, and carefully introducing my little finger detected fractured portion of the eleventh rib and determined that the ball had passed forwards and slightly downwards into the abdominal cavity. I found a clean cut wound four inches to the right of spinous process of twelfth dorsal vertebra, between the eleventh and twelfth ribs. After withdrawing my finger, I introduced a Nélaton probe with great caution to the extent of three inches, where its progress was arrested by the soft tissues. Deeming it hazardous to make any forcible exploration I desisted, and then informed the medical gentlemen who were present that I deemed it unwise to make any further examination. I then asked the physicians who were present to retire to one of the corners of the room for consultation (there being no other available place) respecting the propriety of removing the President to the White House, and whether or no more stimulants should be given. It was then thought best on account of his weak condition to give him another half ounce of brandy."

The physicians present at this consultation were Drs. D. W. Bliss, Smith Townshend, N. S. Lincoln, Basil Norris, P. S. Wales, John B. Hamilton, C. M. Ford, D. C. Patterson, C. B. Purvis and Robert Reyburn. The President repeatedly and urgently requested that he should be removed to the White House. After the examination of the wound the President inquired as to the gravity of his injury; Dr. Bliss replied to him that it was quite impossible to give a definite opinion at this stage, disguising his own fears as to the gravity of the case. The President complained very much of a sense of weight and heaviness in his lower extremities. After a few minutes he said he had a sensation of tingling in his feet, and very soon these sensations changed to severe and distressing pains in the lower extremities. Half an hour after the injury the President's pulse was fifty to the minute, and though feeble was more full. After the consultation it was deemed expedient to remove the President to the White House and the ambulance was ordered for that purpose. I think I can see now the sea of human faces that completely filled the space in and around the depot, as we carried him down the stairs, and through the depot, with the mingled expressions of pity and consternation that sat upon each of them. The President was tenderly and carefully taken up by eight men and carried on the mattress to the ambulance, and was slowly driven to the White House. Dr. Bliss and Dr. Townshend accompanying the President in the ambulance.

At the time of his removal, 10:30 A.M., he complained of pains in his feet and legs, pulse 60 to 65. At 11 A.M. pulse 74 with more character; patient slightly restless, was offered water which he took with half an ounce of brandy. After arriving at the White House he received a hypodermatic injection of one-quarter of a grain of sulphate of morphia, and one ninety-sixth of a grain of sulphate of atropia. At 12 A.M. pulse 94, soft and compressible; he complains of spasmodic pains in the extremities, which he describes as shooting up the legs towards the body. These pains became very severe. There is a considerable hemorrhage which has taken place from the wound since his arrival at the White House, and there is probably also internal hemorrhage taking place. At 12:30 P.M. pulse 88, no material change except interruption of pulse; 12:45 P.M. patient vomited and on recovering himself said: "Well, Doctor, I suppose that was the result of your hypodermic." At 1 P.M. pulse 100 and very feeble, sighing respiration but complains less of pain in the extremities, has pains in the right hip. At 1:30 P.M. patient is restless, has had nausea and has vomited twice; complains of constant pain in the feet, surface cool, temperature 96.8, respiration 30 to the minute. The pulse and respiration are increasing in frequency, whilst the temperature is falling; an ominous sign.

At 1:40 P.M. pulse 124 and feeble. Pain in the extremities continues about the same; patient gives evidence of extreme prostration; 2:15 P.M. pulse 124 and a trifle better in character; respiration 32 per minute; complains much of pain in the lower extremities. After consultation one-quarter of a grain of sulphate of morphia was given hypodermatically; 2:45 P.M. pulse 116 and a trifle more full; respiration 38 per minute; has less pain and feels more like sleeping; is thirsty and asks if it will injure him to take water freely. At 3:40 P.M. pulse 130, pains in the feet more severe. After consultation it was decided to give another quarter of a grain of morphia hypodermatically. At 4:15 P.M. pulse 128; respiration 30 per minute. Seems easier since receiving the hypodermatic injection; but has just vomited freely a watery fluid. Percussion reveals a marked and well-defined dullness in the right hypochondriac region, (below lower margin of the liver).

The President has just made inquiry of Dr. Bliss concerning his real condition, which was explained to him and he took the announcement of his dangerous condition quietly and calmly. At 4:40 P.M. complains of pains in both feet and ankles, but is otherwise comfortable; 5:30 P.M. pulse 140 and respirations 28 per minute. The President has just vomited; is free from pain, but has a sensation of numbness in his hands and arms and wants them rubbed. The respiration is abdominal in character, and is more full on the right side than on the left; 6:30 P.M. pulse 150 and respirations 28 per minute; occasional sighing respiration. The President is cheerful and inclined to talk to his family and friends.

COMMENTARY ON THE STATE OF THE PRESIDENT.

In spite of the cheerful condition of the spirits of our patient as mentioned above, our prognosis of his case at this time was of the most discouraging character. He was evidently bleeding internally, and unless reaction would soon take place, it was evidently impossible that he could long survive. Mrs. Garfield was absent at Elberon, N. J. She had been telegraphed for, and was coming as fast as the express train could bring her to Washington, and yet we had grave and well-founded fears that he would die before her arrival.

Our patient lay on the wounded side to facilitate drainage from the wound. He had a sighing respiration, a feeble and scarcely perceptible pulse; the lines of the face hippocratic in character; frequent movements of the lower limbs, with regurgitations from the stomach. Our anxieties increased with each hour. No indications of reaction could be discovered even by the most sanguine. We measured the time with beating hearts, hoping that the illustrious sufferer might again see the face he loved so well. The President several times made inquiry as to the cause of Mrs. Garfield's delay, and, appreciating the gravity of his injury, was extremely anxious lest she should be too late for an intelligent interview. Upon her arrival, at 6:40 P.M., he requested that their interview should be entirely private. Thus the prostrate and apparently dying husband met his wife. She remained by his side not more than five minutes. The words of love, hope and cheer given him are known only to themselves and to God. It is a fact, however, that within an hour the President's symptoms began to indicate reaction.

The President rarely spoke of his condition, seldom expressed a want, and only once, in my hearing, referred to the circumstance of his shooting. He asked the Secretary of State, in the afternoon, the name of the assassin. On being told, he said: "Why should he have wished to shoot me?" It was explained that he had probably been disappointed in seeking some office.

Commentary continued from 8:30 P.M. July 2, to morning of July 4. The favorable reaction that took place in the condition of the President at 8:30 P.M. July 2, gave a relief to the feelings of the attending surgeons that may be imagined, but scarcely be ade-

quately described. The hemorrhage from the splenic artery, and which was probably also due to injuries received from the bullet by the mesenteric arteries was spontaneously arrested, just as our patient was on the brink of death. This favorable condition of our patient continued during the night, and on the morning of July 3 his temperature was 98.6 (normal); pulse 126; respirations 18 per minute. Drs. Bliss and Reyburn remained on duty all the night of July 2 and 3. Colonel Rockwell, General Swaim, several members of the Cabinet, Miss Edson and Steward Crump were also at hand to render any needed aid. The President enjoyed, upon the whole, considerable refreshing sleep, broken about every half hour by regurgitation of the contents of the stomach. The morning of July 3 found him comparatively cheerful and hopeful, and with a full appreciation of his surroundings. At this time he inquired of me what his chances of recovery were, saying, in his bright and cheerful way, that he desired a frank and full statement—that he was prepared to die, and feared not to learn the worst. He added that personally he was willing to lay down the heavy burden thrust upon him. I replied:

"Mr. President, your injury is formidable. In my judgment, you have a chance for recovery."

He placed his hand upon my arm, and, turning his face more fully toward me, said, with a cheerful smile:

"Well, Doctor, we'll take that chance."

It was perfectly apparent that there were more physicians in attendance upon the President than were needed, and Dr. Bliss determined to ascertain the President's wishes in the matter. On the morning of July 3 after the morning consultation and dressing of the wound, Dr. Bliss went to the President and said: "Mr. President, there are a number of the physicians of the city who have kindly volunteered their services and have been associated with me in conducting your case successfully through the day and night since your injury, and have contributed largely to the prospects of your recovery. Now that Mrs. Garfield has arrived and you are so comfortable, we wish to retire from the case and ask you to select your permanent surgeon and his counsel." The President replied:

"I wish you to retain charge of my case, and select such counsel as you may think best. Your judgment is better than mine on that subject." Dr. Bliss then said that if it was agreeable to the President and Mrs. Garfield, he would select Surgeon-General Barnes, U. S. A., Surgeon Woodward, U. S. A., and Dr. Robert Reyburn as his counsel, giving his reasons in each case for making the selection. The President replied:

"Doctor, your selection is eminently satisfactory."

Dr. Bliss then requested permission to thank the medical gentlemen in the name of the President and Mrs. Garfield, which was accordingly done. As many statements have been maliciously made to the effect that Dr. Bliss in assuming the charge of the President did so without due authorization, I herewith submit the following documentary evidence which will settle the point beyond question. Before me lies an official copy of the affidavit made by the Honorable Robert T. Lincoln, Secretary of War, and dated, War Department, Washington, D. C., May 23, 1882, and from which the following is an extract: "When the President was shot my carriage was at the door of the railway station, and within a few seconds I hurried it off to bring you (Dr. Bliss)." Farther on in the same affidavit the Secretary again says: "You (Dr. Bliss) at once took charge of the President, acting with the other surgeons who came quickly to his help."

II.

The duties of the attending surgeons were at this time systematically divided among them as follows: Dr. Bliss as chief surgeon in charge of the case remained on continuous duty every night at the White House, from the time the President was shot until he was taken to Elberon, N. J., and he continued his vigils there until the death of the President. During a long and varied professional career, I have known many instances of the self-sacrificing devotion of physicians to their patients, but I have never known such complete self-abnegation as was manifested by Dr. Bliss in his care of the President. He seemed to neither think nor speak of anything, except what concerned the welfare of his illustrious patient. All the medicine and all the articles of diet were either administered by him or under his immediate direction. Surgeon-General Barnes came twice a day in consultation with the other surgeons. To Dr. J. J. Woodward was intrusted the duty of preparing and writing the daily bulletins of the case, and along with Dr. Robert Reyburn assisted in taking the temperature, pulse and respiration, which was done at least three times a day. This naturally became after a while rather wearisome to the President. On my coming into the room one day he smiled, and said: "Here comes old temperature again." To Dr. Reyburn was assigned the duty of taking notes of the case, which were written each day by him in a book procured for the purpose. Drs. Woodward and Reyburn slept each night alternately in the White House, and were always on hand to furnish such assistance as might be required. The nursing of the President was done by Colonel Rockwell, General Swaim, Dr. Boynton, Dr. (Miss) Edson, Steward Crump, and the faithful body servant of President Garfield. These all rendered faithful and meritorious services, and their devotion to the President deserves the highest praise. Mr. J. Stanley Brown, Private Secretary to the President was on almost continuous duty during the President's illness, and gave all the aid in his power. The labor of nursing the President, I may here remark, was much more severe than it would seem to be. In the first place, during a large part of the President's illness it was impossible for him to turn in bed, or even to bend his spine. In order, therefore, to promote his comfort and prevent bedsores, it was necessary to turn him, or to change his position in the bed very many times during the twenty-four hours—this would sometimes reach fifty, sixty or even one hundred times a day. Strong linen sheets were kept under him for the purpose of moving him. When he required a change of position, three persons, either doctors or nurses (as they happened to be in the room at the time) came on each side of the bed, and taking hold of the sheets gently rolled him over to the side he wished to go. For the same reason every passage of his bowels and urine required the same attendance bestowed upon a young infant. The President was a man of large and massive frame (he was over six feet in height and weighed two hundred pounds the day before he was shot), so

it will be readily understood that the physical labor devolving upon his nurses and medical attendants was quite severe. Until the President was removed to Elberon, N. J., the medical bulletins of his case were prepared in conjunction with the other attending surgeons exclusively by Dr. Woodward and myself. Mentioning this fact recalls the many harsh criticisms which were made concerning the roseate statements which the bulletins gave of the President's condition. These bulletins were often the subject of animated and sometimes heated discussion between Dr. Bliss and the other attending surgeons, the surgeons usually taking one side of the question and Dr. Bliss the other. The ground taken by Dr. Bliss was that in the President's case it was vitally necessary to keep from him every unfavorable symptom, for by so doing we gave him his only desperate chance of recovery. It must be remembered that during almost all of his illness he was able to have the newspapers read to him, and he always asked for them every morning. If the slightest unfavorable symptom was mentioned in one of the bulletins, it was instantly telegraphed all over the country, and appeared in every newspaper the next morning. In fact, during the early part of the case he very often read the newspapers himself. We were placed in a very embarrassing position; on the one hand we did not wish to dishearten our patient by circulating discouraging reports of his condition, and on the other hand we wished to do our duty to ourselves and to the people of the whole country, who watched with such intense eagerness every word of intelligence that came from us.

During the early part of the day of July 3 the President's temperature remained about normal; towards evening a slight rise in temperature took place, reaching 100 at 10:30 P.M. He slept a good deal during the night of July 2–3, and in the morning took with relish equal parts of milk and lime water. He complained often during the day of severe pains of a lancinating character in the scrotum, both feet and ankles; he complained also of sensations of pricking and numbness in the same members. These symptoms were no doubt due to the concussion of the spinal cord produced during the passing of the bullet through the body of the fourth lumbar vertebra. So marked were these symptoms for the first few days after he was wounded, that it was feared that the spinal cord itself might have been injured. Of course the after history of the case (from the gradual disappearance of these symptoms) showed that such could not have been the case. Applications of cloths wrung out of hot water not relieving him entirely, he was given a hypodermatic injection of one-quarter of a grain of sulphate of morphia. He seemed cheerful and full of hope and amused himself by telling us a laughable incident of his early life. Slight tympanites was detected during the day, but no pain on pressure, nor any marked rigidity of the abdominal walls. This was the only symptom that pointed to the existence of peritonitis during the whole history of the case. During the night of July 3–4 the patient dozed at intervals. When awake he complained so much of the pains in his feet that he was given another quarter of a grain of sulphate of morphia hypodermatically; 7:30 A.M. he has vomited at intervals of twenty minutes during the past two hours. Gave one-half ounce of milk and lime water every hour, with powders of four grains of subnitrate of bismuth, two grains of oxalate of cerium in each one; to be given when required. Surgeons Dr. D. Hayes Agnew of Philadelphia, and Dr. Frank Hamilton of New York, having been summoned in consultation, arrived this morning. Dr. Agnew arrived at 4:30 A.M., and saw the President, but postponed the examination of the wound until the arrival of Dr. Hamilton at six o'clock. They were formally presented to the President and we held our consultation at 7:30 A.M. On dressing the wound there was found to be a very slight discharge from it, and scarcely any swelling or inflammation around the track of the wound. A careful review of the case was given to the consulting surgeons by Dr. Bliss, with the request that they should, with the data before them, examine the case thoroughly, as though it was their own, and freely express their views concerning the character and gravity of the injuries, and the course of treatment up to that time. He also gave them a detailed account of the explorations made in the wound, and the unsettled opinions as then held as to the course of the missile, and the organs involved in the injury. Carefully weighing all the evidence, the more prominent symptoms upon which the diagnosis was made were presented in the following order: The relative position of the assassin to the President at the time of the shooting, the direction of the bullet through the tissues as far as it could be determined, the amelioration of pain and hyperesthesia in the feet and ankles and scrotum, the repeated unsuccessful efforts to pass a probe or flexible instrument more than half an inch in any direction beyond the fractured rib, except in a direction downward, a little forward and anterior to the twelfth rib, where it could be passed about two inches. Neither the significance of the profound shock was underestimated, nor the lengthened period of collapse which followed, and which seemed to point to extensive lesions of important viscera. However, the fact that the kidneys, intestine and peritoneum had not been seriously injured, was shown by the passage of normal urine, the spontaneous movements from the bowels of natural feces, the discharge of flatus, and the absence of other symptoms of peritonitis. It was found to be impossible to determine positively the course taken by the bullet, but the indications pointed to a downward course into the pelvic cavity. The absence of any symptoms that could be attributed to a lesion of the liver, also showed that it had escaped serious injury.

They individually examined the wound with great care. These examinations consisted in the introduction in different directions, of probes and flexible bougies, in order if possible to determine the course of the bullet. With the evidences developed by this personal examination, together with the complete history given them of the shooting of the President, the consulting surgeons proceeded to discuss the possible course of the bullet and the organs involved. The propriety of making extensive incisions and dissections, so as to explore the fractured ribs and remove as much as might be necessary to reveal the true course of the bullet, was fully considered. It was finally determined, however, that the favorable condition of the President thus far, did not warrant such interference, and further such an operation would seriously complicate the case and diminish the prospects of recovery.

The consulting surgeons issued the following bulletin to-day after the consultation:

JULY 4, 1881.

We held a consultation with the physicians in charge of the President's case at 7:30 A.M. to-day, and approve in every particular of the management and care of the case, and of the course of treatment which has been pursued.

FRANK H. HAMILTON of New York.
D. HAYES AGNEW of Philadelphia.

At the time of the consultation his temperature was 99:4; pulse 104; respiration 19. He suffers considerably from pains in the feet, and cloths saturated in camphorated tincture of opium were applied to them; some vomiting of a clear fluid tinged with bile. Stopped giving nourishment at 10:30 A.M., and gave two teaspoonfuls of lime water with cracked ice. At 1 P.M. it was deemed necessary to give him another hypodermatic injection of one-eighth of a grain of sulphate of morphia. He then received the following prescription: Carbolic acid solution fifteen drops and lime water four ounces; mix and give a tablespoonful every hour.

At 3:30 P.M. The President has slept at intervals, and on waking expressed himself as feeling more rested. Still continues to vomit at intervals of about thirty minutes, without straining or nausea, and only about an ounce of fluid is ejected each time; 4:30 P.M., patient is more restless, and is more indifferent to surroundings; received another eighth of a grain of morphia hypodermatically; 7:45 P.M., (bulletin.): The President is not so comfortable. He does not suffer so much pain in the feet. The tympanites is again more noticeable; temperature is 101.9; pulse 126; respirations 24.

Telegrams of inquiry and condolence were showered in a perfect avalanche on the White House during the early part of the President's illness. They came from Vice-President Arthur, ex-President Grant, from the officials of the various States of the Union, and indeed from almost every prominent public man in the United States. This interest was not sectional in character. South as well as North, East as well as West, vied with each other in showing their sympathy with our stricken Chief Magistrate. Probably never in the history of the world was there such an outpouring of friendly feeling as was manifested in the case of President Garfield. The Queen of England was among the first to express her sorrow and best wishes for his recovery. This was followed by messages from all the crowned heads of Europe, as well as from many of the officials and public men of the different countries of Europe.

As to the letters received, their name was legion. During the whole time, indeed, of our attendance upon the President the mail received at the White House assumed alarming proportions. We received every morning literally bushels of letters, and many of them were of the most ordinary character. Every crank and vendor of patent medicines in the country seemed to think himself called upon to offer to cure the President. One man gravely suggested that the President's body should be inverted for some hours in order that the bullet might gravitate downwards, and thus aid in its removal. Another sent a drawing of a machine composed of a rubber tube and an air-pump. The rubber tube was to be introduced into the wound until it came in contact with the bullet, then the air-pump was to be attached to it, and by suction the bullet removed. I wish now I had retained some of the most absurd of these missives, but at the time of receiving them we were too busy to appreciate either their absurdity or comicality.

July 5, 8:30 A.M. The President has passed a comfortable night, and his condition this morning is decidedly more favorable. There has been no vomiting since last evening at 8 P.M., and he has been able to retain the liquid nourishment administered. There is less tympanites and no abdominal tenderness except in the region of the wound. Temperature 100; pulse 114; respirations 24.

The following dispatch was sent by the surgeons in charge to the consulting surgeons:

JULY 5, 9:30 A.M.

After you left the urgent symptoms continued. There was much restlessness, constant vomiting, and by 8 o'clock P.M. the President's condition seemed even more serious than when you saw him. Since then his symptoms have gradually become more favorable. There has been no vomiting or regurgitation of fluid from the stomach since 8 o'clock last evening. The President has slept a good deal during the night, and this morning expresses himself as feeling comparatively comfortable. The spasmodic pains in the lower extremities have entirely disappeared, leaving behind, however, much muscular soreness and tenderness to the touch. There is less tympanites and no abdominal tenderness whatever except in the hepatic region. Since 8 P.M. (July 4) he has taken an ounce and a half of chicken broth every two hours and has retained it all. The wound was dressed antiseptically this morning. Altogether but one-half a grain of morphia has been given hypodermatically during the past twenty-four hours, and it has been found quite sufficient. His pulse, however, still keeps up. At 8:30 A.M. it was 114; temperature 100.5; respirations 24. Seventy-two hours have now elapsed since the wound was received. We can not but feel encouraged this morning, though of course we do not overlook any of the perils that still beset the path towards recovery. The course of treatment agreed upon will be steadily carried out.

D. W. BLISS,
J. J. WOODWARD,
J. K. BARNES,
ROBT. REYBURN.

July 5, 12:30 P.M. The favorable condition of the President continues, and at noon he had a natural sleep. Temperature 101; pulse 110; respirations 24. July 5, 8:30 P.M. Favorable condition unchanged. Temperature 100.9; pulse 106; respirations 24.

As above mentioned, the wound of the President was dressed antiseptically, and this continued to be the case during the entire time of the treatment. The most scrupulous cleanliness of the instruments, and surgical appliances was observed, and also of the antiseptic solutions used for the daily washing out of the wound, and every effort was made to render them as aseptic as possible. The solution used was a freshly made one of carbolic acid in water, varying in strength, sometimes a 1 per cent. and sometimes a 2 or 3 per cent. solution being made. With this a solution of permanganate of potash of the strength of one to three grains to the fluid ounce of water was alternated. The carbolic spray was also invariably used during the dressing of the wound. It must be remembered that the technique of antiseptic, or more properly speaking, aseptic surgery was not so thoroughly appreciated or carried out by operating surgeons in 1881 as it is in 1892.

July 6, 8:30 A.M. The President slept well, and said this morning that he passed the most comfortable night he had had since he had been shot. He feels some desire for solid food, but was only given chicken broth, with white of egg, one ounce every

two hours. Temperature 98.9; pulse 98; respiration 23. July 6, 12:30 P.M. Temperature 98.7; pulse 100; respiration 23.

July 6, 8:30 P.M. His condition continues favorable, and he takes more nourishment than yesterday. Temperature 100.6; pulse 104; respiration 23. July 6, 11 P.M. The President continues to take chicken broth with white of an egg one ounce every two hours.

At 9:30 P.M. received one-quarter of a grain of sulphate of morphia, hypodermatically, and is now sleeping quietly, though he occasionally awakes and asks for ice water. A decidedly yellowish hue of the skin has made its appearance during the past two days, but is scarcely pronounced enough to call it icteroid. He complains of great muscular weakness and of the tenderness of the skin of the feet and ankles.

July 7, 9 A.M. The President slept last night until 8:30 this morning, when he awoke feeling refreshed and free from pain. He retains his nourishment. The wound was dressed antiseptically; very little discharge from the wound. Temperature 98.2; pulse 108; respiration 23.

(To be continued.)

EXERCISE—ITS PHYSIOLOGIC FUNCTIONS.

Read before the Topeka Academy of Medicine.

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South says: "God made no faculty but also provided it with a proper object on which to exercise itself." As God does no unnecessary thing, exercise is essential to the health and development of each organ of the body, each faculty of the soul. Progress demands constant renewal and readjustment. Change is the changeless law of nature. The old must give place to the new. The present is but the everchanging eternal link that binds the future to the past, and in all organic life, with properly regulated activities, each new link will be stronger than the last. Evolution is the law of God. Crabbe defines exercise as "repeated or continued exertion, coupled with purpose." Physiologically, it is that wisely regulated activity through which, by one of those beautiful compensations, so often observed in nature, both the force expended and the atoms destroyed are renewed in more potential form. It is the application of stored up force for the generation of greater force. Whether life was created merely for the reproduction of species, or for that evolution that changes and vivifies matter until at last a superadded spirit finds through it all its possibilities until it reaches that final change beyond which science can not go, the continuous change incident to exercise is essential to both physical and spiritual development. Exercise, voluntary and involuntary, is necessary to constructive and destructive metamorphosis, the vital forces that keep the body new and strong. The functional activity of an organism destroys and removes its atoms while it provides material for their renewal. When exercise is moderate and the material rich in nutritive elements there is increased development, and when the size or number of the cells is greatly increased there is hypertrophy or hyperplasia. On the other hand, atrophy and degeneration follows want of exercise and nutrition.

The body is a marvelous piece of mechanism, whose several parts are so fitly joined that we can not comprehend any one without comprehending all. Impressions made on any one part are in touch with all. In discussing exercise, we must remember that it is but one of many instrumentalities through which the body, mind and soul reach their possibilities, and that we can not confine the effects of its developmental force to the single organ or system we subject to its methods. But more largely than any other force it is the means to the end. It supplies to the cells the material they convert into protoplasm, while it returns them to original elements. It furnishes the force that vitalizes and energizes, while it consumes it. Properly applied it develops and preserves both the form and functions of the several parts of the body and their harmonious relations, and so secures the ends for which they were created. Improperly used, it brings disease to individual organs and interferes with the harmonious action of the organism. Thus by the proper exercise of the organ of vision its functions become clear and strong, the perceptions become more acute, life is more joyous and the vitality of the whole organism is increased. Improperly used, the organ is injured, various diseases are developed, and their effects are not confined to the injured organ. Through proper exercise, the vocal organs are so educated that they convey in varied tones all the emotions of the soul, while through improper use they cease to be its servants, and may produce far reaching disease. The trained muscles, under the control of the will are equal to every contingency. The skilled surgeon plunges his knife where the deviation of a line might prove fatal, with perfect confidence in his ability to control every movement of the hand; the gymnast performs his wonderful feats with full faith that his muscles will obey his will, while the athlete develops a muscular power that scarce knows its bounds. By properly regulated exercise the brain cells, through which are the activities of the spirit, enable it to reach ever upward toward the Infinite; to comprehend the minutest molecule; to weigh in the balance the remotest world; to understand and to utilize the varied laws by which the Omniscient governs the universe, and through its acquisitions in art, rhetoric and science prove its kinship with the Eternal. Without properly regulated exercise, all the forces of the body, all the faculties of the soul retrograde. With improper exercise, they fall beneath the palsied hand of disease. Exercise increases in force and frequency the pulsations of the heart and the rapidity and volume of the respiration. More oxygen is absorbed, more carbon dioxide eliminated, and by exercise that calls into action the whole organism, vitality is increased and life prolonged. But it has its limitations, and the important question is how much is necessary to secure the best results. That will depend largely upon the purpose of life.

Those who live on the fruits of their muscles should take such exercise as will secure their healthful development, and such perfect obedience to the will as will make them the efficient servants of the spiritual man. As the cells of the cortex of the brain are comparatively independent of the functions of the mere animal life, being evolved for spiritual purposes, and simply receiving nourishment and purification through the activities of other portions of the organism, their exercise is rarely a source of disease, the diseases so often attributed to brain work being due to irregularities and improprieties. Other

things being equal, brain work is healthful and brain workers long lived. The frequent "heart failures," and "Bright's disease," and other pathologic conditions common to brain workers, especially in the political arena, can be accounted for on sounder physiologic and pathologic principles. Brain work only requires such physical exercise and development as will keep the organism in health, that it may supply the cells of the cortex with the elements of life and development and remove waste, and exercise for this purpose should be regular and bring into action all parts of the body, but never excessive, as the healthful action of the intellectual brain is never benefited, but always injured, by excessive muscular effort and development, force and nourishment that should sustain intellectual action being expended to create and sustain massive muscles, useless to spiritual activity, but once developed demanding excessive and continued attention, and ever liable to various diseases.

That the proper amount of exercise may be taken during the developmental period of life, and applied where needed, that its function may be understood and regular habits and self-control established, there should be a department of physical culture in all our schools, both for the benefit of the individual members of the school, who too often graduate into early graves, and for the good of the State, that intellectual and moral culture may mean, as well, physical vigor and long and useful lives. And the duties of such a department might have a wide reach, as all intellectual and moral development is through the instrumentality of the body. A one-sided education that develops the cells through which particular faculties act, leaving those of other facilities undeveloped, makes one-sided men; the cranks who curse the State and disgrace humanity, often obscuring the line that separates sanity from insanity. We have all known such cases as that of Prof. A. of —— University, a most distinguished mathematician, but innocent of common sense, and we have known too well the Guiteaus and Prendergasts. While men may with advantage devote themselves to special departments, distinction involves a wide range of knowledge. The specialist in medicine who believes his patient all eye, or ear, or throat, or even alimentary canal, illustrates the saying of Wilhelm Meister: "He who knows it half speaks often and is always wrong;" and proves the prescience of the poet who wrote:

> "A little learning is a dangerous thing,
> Drink deep or taste not the Pyerian spring."

Every cell and every organ of the body was created for use. By way of illustration, let us confine our thought to the effects of exercise upon the muscular system. We know that the contraction and relaxation of muscular fibers changes and sustains the volume of the circulation in their capillaries, and that the cells exhausted by increased activity eagerly appropriate its elements, and that when supply and appropriation are stimulated beyond the normal, there is hypertrophy.

We have an apt and beautiful illustration of the effect of regular and moderate exercise in the pulsations of the heart. Day and night, year after year, the blood is drawn into and driven out of its muscles in such well measured quantity that without fatigue, and without increase or diminution in development the muscles of the beating heart contract and relax sixty or seventy times each minute throughout life. If, like the voluntary muscles, this important organ had been left under the control of a capricious will, the grave hypertrophies and atrophies, the valvular lesions and irregular innervation that from violence, irregularity and disease occasionally endanger or destroy life would have been the common lot of mankind. The preservation of the form and function of this organ, never resting but for an instant, emphasizes more than argument or illustration, the importance of the regular and measured exercise of the whole organism.

Muscles do not develop alone. Their activity involves activity in every other part of the organism. We readily note their impress upon the nervous system, whence comes all that energizes. The central cells are stimulated by reflexes, nervous force is generated and distributed to the acting organs, and nervous power developed. But we must remember that the exercise of organs of vital function has only an indirect influence on those of spiritual function. Though we may not comprehend *how* the muscles are strengthened and controlled by the action of the will, or what nervous force is, we know the results. Under systematic training Sandow is able to sustain a weight a thousand times greater than even his massive muscles would support if dissected from his body, and the skilled workman performs the most delicate and rapid movements with accuracy and ease; muscle and nerve being developed, *pari passu*. But when the acting muscles draw too heavily upon the vital forces there may be sudden failure of innervation, or other parts of the organism may be dwarfed through inanition.

Muscular effort, in any part, demands increased activity of heart and lungs, absorbents and excretants, and there is increased force given to all; but the athlete never gains intellectual or moral vigor from pounding his sand bags, and the blacksmith may hammer his anvil "from early morn till dewy eve," without becoming a "learned blacksmith," unless, like Elihu Burritt, he gives other training to the cells of his brain. The football champion may, by his persistent training, develop a fine physique, and so may the champion of "the ring," but neither will thereby develop the cells through which the spirit acts, except as the emotions and passions of the actors and visitors, intent upon victory at any cost, may find harmful development. Yet we might infer from the expressions of the press, and of some of the professors in our universities that the development of muscle was the *sine qua non* of a college course, and that the college whose "team" could "paint red" all its opponents in a "knock down and drag out" game of football was, *par excellence*, the educational institution of the age. While we can understand how professors of moral science and mathematics, and of Latin and Greek, through lack of a knowledge of physiology and hygiene may believe that great muscular development is essential to a strong life, and close mental application, we can not understand how those who appreciate the dignity and grandeur of the intellectual and moral forces can consent to practice in the gymnasium, or fight sand bags by the month that they may kick a leather ball farther than their opponents, or beat into insensibility a fellow mortal, or how instructors in mental and moral science can believe that a student with his mind intent on football, or anything foreign to mental training, with

frequent interruptions of his college course given to exciting exhibitions of his muscle, is in line with the best educational methods and results. The development of the organism is in line with its exercise. The college should be a gymnasium of mental training for beneficent purposes, for developing the organs through which knowledge and wisdom are attained, and not a gymnasium for forcing the development of mere animal life.

The college professor knows, or should know, that the forces through which the spiritual life is developed are rested by a change of studies; that the cells through which the mathematics are developed are not developed by the activities of the imagination; that those of the imagination are not developed by the study of moral science, and that the whole attention given to one branch of learning makes one-sided men; though by alternation of studies one faculty rests while another works, the habit of mental application continuously improves. Much more should these professors know that if the exercise of the cells of one portion of the intellectual brain can not develop the cells of other portions, that the exercise of those of merely animal function can not develop those of intellectual and moral function; that their only relation to the cerebrum is the preparation and supply to its cells of necessary nutriment, and that while for this a well balanced and healthful activity of the whole organism is required, an overgrown animalism demands so much of vital force that that portion of the body created for spiritual activity is dwarfed and atrophied.

As an illustration of modern methods of education, take the two leading orthodox universities, Princeton and Yale. After numerous breaks in the college course, and months of training, they met on the 30th ult—Thanksgiving day—on the Manhattan field, and Princeton reached home the victors of a bloody fight, when we are told by a laudatory press, "the bells of Princeton rang for four hours, and everybody in this staid old Presbyterian college, from President to janitor, rushed to a mass meeting, when the President said: 'It was a glorious day for Princeton,' and Dr. Green, 'Yale was nowhere; Princeton was everywhere,' and Dean Murray, 'wait till next week that we may have the opportunity of assisting in a glorious celebration;' and after promenading the city until the small hours of the morning with foghorns and tin pans and drums they waited, and had a *glorious celebration*."

Let us look at the other side of the great college spectacle. The New York *Tribune*, an advocate of the game, says: "About the entrance of the hotel were perhaps five hundred people waiting to see what the defeated Yale looked like. And they saw. But they never saw a more woe-begone, used up, pale-faced, bruised and bloodied lot of respectable, healthy sane young men before. One of the players crawled down off the coach and passed into the hotel through the alley made by the police through the crowd. Two of the players had to be helped, half carried. The men had just come from the battlefield; their faces were muddy and marked with bloody streaks; their sweaters were stained and reddened. In their dilapidated condition they did not look the strong, powerful young giants who had driven away, so full of confidence, earlier in the day."

Harper gives its picture of the victors at the same hour. It says: "People who live far away from New York, and who can not understand from the faint echoes they receive how great is the enthusiasm, may get some idea from an incident in the Princeton dressing room. The team was being rubbed down for the last time after three months of self-denial and anxiety, and the hardest kind of work that young men are called upon to do, while outside thousands of Princeton followers are jumping up and down and hugging each other, and shrieking themselves hoarse, when one of the Princeton coachers came into the room out of this mob, and holding up his arm for silence, said: 'Boys, I want you to sing the Doxology.' And standing as they were, naked and covered with mud and blood and perspiration, the eleven men who had won the championship sang the Doxology from beginning to end, solemnly and seriously. . . while the defeated team was lying on the benches of their dressing room, sobbing like hysterical school girls."

One more thought on this great moral exhibition, which we also quote from its champion, *Harper*. In speaking of "Billy" Edwards, an ex-prize fighter, fit adjunct to the moral drama, it says: "He keeps guard over the glassware of the Hoffman House bar, and goes to sleep on the eve of Thanksgiving day with as much as fifty thousand dollars in his possession,"—money bet on the game. And that we may know who deposits with him, it says: "The collegians begin to arrive on Wednesday and one sees nothing but young men enveloped in huge great coats and ulsters. They make Broadway, between the Fifth Avenue Hotel, where the Yale team lodges, and the Hoffman House, where odds are given and taken on the game, almost impassable."

The disregard for limb and life, the brutality and betting on the football field, and in the ring are much the same, differing mainly in the culture and character of the actors. For the one, they are recruited from the college where young men of promise are sent from Christian homes to develop the nobler faculties of mind and soul, drawing from the college and from the same class of society their henchmen and hooters, and here loss by death or demoralization brings sadness to many hearts and loss to the State.

In the other, they are the habitues of the grog-shop and the gambling den, who can scarce reach a lower level, and when "knocked out" are little missed.

If the football teams from our colleges are such models of propriety and scholarship as represented, how great has been the wrong to them, their friends and society. We know it is claimed that football develops determination, will force, quickness of perception, the self-restraint incident to months of training and courage. The same is claimed, and with equal reason, for the ring. Purpose is the foundation on which moral qualities are built. Character may be bad as well as good. The determination may be to do wrong as well as right.

> "There is a divinity that shapes our ends,
> Rough hew them how we may."

"Men do not gather figs from thistles nor grapes from thorns." The means must not only be equal to the ends, but in line with the ends. The Jacksons and Sullivans are the fruits of the ring. Those of the modern football team are not yet ripe, but how much prescience is required to tell the results of a game where a half score of players jump upon an opponent, and where the contestants fight with hands

and feet, breaking noses, ribs and limbs, dislocating joints, slugging on the sly, and in not a few instances taking life. And is this great intellectual and moral drama necessary to the development of courage and the nobler qualities of manhood? When this country has called to arms have not Americans from every department of life freely responded, and were the sluggers in personal encounter the men who stood firm where shrieking shells and hissing bullets fell thick and fast? Is not a prize fight where the combatants boldly declare their purpose, both a moral and scientific exhibition, compared with a modern football battle?

This may seem a diversion from the thought of our subject, but all the activities of the body, mind and soul are through the development of the physical organism, and if it is important that he who makes physical life his study should know the laws by which muscles are developed, how much more important that he should understand the laws that govern the development of those faculties that distinguish man from the brute, and the relation of each to the other?

Ethics may picture to the ethical the athlete transfigured into an intellectual and moral giant, but science beholds him transformed into a prize animal. The one looks at an ideal spiritual growth; the other at the absolute of physical life. One sees what he ought to be; the other what he is. Ethics has an ideal that science will not permit it to realize, for it knows that "they who sow to the spirit shall of the spirit reap," and "they who sow to the flesh of the flesh." Exercise is the stimulus to the metamorphosis of physical life whereby the old atoms are removed and renewed, and its action is largely confined to the organs exercised.

Man differs from the brute only as he has superadded to his animal a spiritual life that can control his will and direct his developmental forces. It requires generations of careful training and breeding to build up the massive muscles of the Percheron and Norman horse, or to produce the speed and endurance of the "thoroughbred," while man, through a well-directed will force makes equal development in a few years. Thus Sandow, the Prussian athlete, who belongs to a family never noted for either strength or athletic tastes, and when 18 years of age possessing no marked muscular characteristics, by localizing muscle building, and associating with muscular training voluntary control, in a few years reached his present wonderful development. He is now 26 years old, and though only 5 feet 8½ inches in height, he measures around the chest 46 inches; about the waist 29 inches; under the axilla and over the deltoid 17 inches; under the axilla and over the shoulder 21 inches; over the biceps 19¼ inches; around the forearm 19 inches; thigh 27 inches; calf 17½ inches; and has an expansive mobility of the chest of 14 inches. He lifts from the floor, with apparent ease, with one hand, at arm's length, straight above his head, a hollow dumb-bell, with a man in each globe, weighing 305 pounds, and as easily lets it down again; or he performs with apparent ease the still greater feat of placing his feet and hands on the floor and on a platform resting on his knees and chest supports three horses, weighing 2,800 pounds, while his lungs move quietly and his well developed heart sits lightly on its throne. But while Sandow has acquired volitional control over his muscles, even with his phlegmatic temperament, he fails to control his appetites and passions, but eats and drinks and smokes regardless of consequences, and is far from being an intellectual or moral giant.

From Samson, shorn of his strength by the seductions of Delilah, down to drunken John Sullivan, neither athletes or gymnasts have been distinguished for spiritual refinement or power, while in thousands, from the poet king of Israel; the blind bards of Greece and England; the Little Corporal, who conquered the nations of Europe, to Longfellow, and Gladstone, the great English premier, who has passed the age of fourscore years, giant intellects have developed through comparatively frail bodies, and without muscle, have gained as distinguished conquests in the world of mind as have athletes and gymnasts, without mind, in the world of muscle. And science teaches that the great animal development, consequent upon gymnastic and athletic training and contests, tends to sudden, or at best, premature death, and science is supported by vital statistics. If sudden death does not follow a heart taxed beyond its power of innervation, the overgrown muscles must be exercised in proportion to their development, while the digestive organs must be overtaxed to feed them, the circulatory system to carry their nutrients, the respiratory to oxidize their blood and the excretory to eliminate their waste. To stop the excessive exercise of these over developed muscles is not less dangerous than to continue it. There will come a time when physical life reaches the down-hill grade, when it must cease, and the involution of over developed organs invite all manner of diseases, both from within and without. Man was not made to be developed into an ox or a behemoth. He may energize for a time overgrown organs but, as when a ten-horse power engine is forced to do the work of a fifty-horse power, there is constant danger of explosion, and at best it is soon destroyed by excessive wear and tear, or its fires are smothered by accumulations from the consumed fuel; its premature destruction is a foregone conclusion.

To briefly summarize the relations of exercise to physical and spiritual life and health:

1. Exercise is essential to vital metamorphosis.

2. The cell growth of muscles and groups of muscles is rapidly increased by properly regulated volitional exercise, with a corresponding increase of nerve force and organic activity, provided there is a proper supply of muscle-building and force-producing food.

3. When an excessive development of an organ is produced, it involves its excessive and continued use, its cessation being full of danger.

4. Overgrown, hypertrophied organs are unnecessary and injurious, while their normal development and innervation is essential to life and all its activities.

5. The cells of the gray matter of the brain are not developed by the stimulus that energizes mere animal life, being an evolution for the activities of a superadded spiritual life.

6. Their relation to the merely animal organism is only one of supply and depuration and of their power of energizing through the action of the will.

7. While a harmoniously developed and healthful physical organization is essential to spiritual activity, spiritual life is handicapped by an overgrown animalism.

8. The development of the various organs of the body is in line with their activities.

9. By proper exercise the organs of animal life, receiving proper nourishment and development, healthfully perform all their functions, while the perceptions, correlated through the cells of the brain cortex, develop force in line with their correlation, and man reaches his ideal.

SUBVOLUTION—A NEW PTERYGIUM OPERATION.

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Many theories have been advanced to explain the origin and mode of growth of pterygium. Arlt ascribes it to an erosion of the cornea at the scleral margin, which in healing pulls the conjunctiva into the cicatrix. Poncet found micrococci in some of his pathologic preparations, and regarded them in the light of etiologic factors. Theobald concluded that the long-continued action of the recti muscles, usually the interni, was the responsible cause. Mannhardt regarded episcleritis as the promoting element.

None of the explanations, however, are entirely satisfactory. A thorough and critical examination of this subject has recently been made by Fuchs of Vienna, who after long-continued clinical and microscopic investigation concluded that a pterygium results from a pinguecula; that the hyaline degeneration which occurs in this pathologic product is continued on the adjoining corneal tissue over which the conjunctiva is pulled.

As many methods of operation have been introduced for the successful eradication of pterygium, as there have been theories advanced for the elucidation of its growth and pathology. These may be all grouped under the following heads:

Transplantation of the pterygium; excision; strangulation, and evulsion.

The simplest, and according to Arlt, the most efficient operation is that of excision as first practiced by Cocius. It consists in separating the pterygium from the underlying cornea, and excising it with a triangular piece of conjunctiva. The conjunctival wound is closed by a suture placed a few millimeters from the cornea-scleral margin.

In the following diagram, Fig. 1, *a*, represents the pterygium; *b*, the triangular piece of conjunctiva to be removed; and *c*, *c*, the sutures which are to unite the cut.

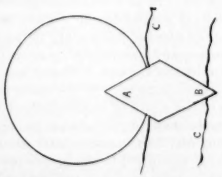

Fig. 1.

Wright of Columbus, and Prince of Springfield, report favorable results following evulsion. The former tears the pterygium with a forceps. The latter loosens it from the cornea with a strabismus hook, and then proceeds as in the operation of excision.

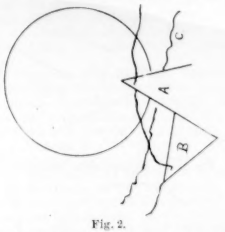

Fig. 2.

Demarres (Fig. 2,) practiced transplantation as early as 1855. After dissecting loose the flap on the cornea and on the sclerotic, he makes a conjunctival incision downward, commencing from the lower border of the base. Into the lower edge of the triangular gaping wound, the apex of the pterygium is sewed.

Knapp's modification consists in dividing the pterygium when large from apex to base, into two flaps. The ends are cut off and each flap is transplanted into its corresponding upper and lower conjunctival wound. The exposed surface of the sclerotic is covered by first dissecting up and then drawing together the conjunctiva.

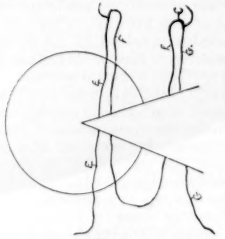

Fig. 3.

Strangulation is advocated by Szokalski and Galozowski. The first (Fig. 3,) passes a thread, armed with two needles, under the corneal and sclerotic portions of the pterygium. The thread is cut close to the needles leaving three threads. The ends of each are tied, a knotting of the middle one puckers the pterygium and all three of them cut off its circulation.

Fig. 4.—Thread in position; both ends are knotted, thus strangulating the pterygium.

Galozowski (Fig. 4,) separates the pterygium from the cornea, passes both needles at either end of the thread through the apex from above downward, leaving a loop on the upper surface. The needles are again entered at either border of the base through its under surface. It will be observed that the flap

is turned downward upon itself, its upper surface being brought in contact with the sclerotic. The two ends of the suture are tied together, thus strangulating the pterygium at the base.

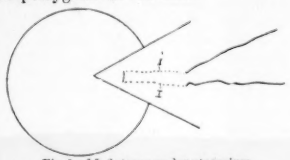

Fig. 5.—I I, Sutures under pterygium.

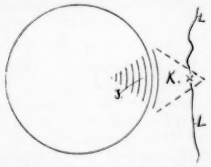

Fig. 6.—J, Denuded surface of cornea; K, pterygium turned under its base, dotted lines its edges; L L, suture knotted.

Hotz recently read a paper before the AMERICAN MEDICAL ASSOCIATION, recommending transplantation of a Thiersch's graft taken from the arm to replace the defect produced by retraction of the dissected pterygium.

Most of these procedures are frequently followed by a renewal of the growth. There are two fundamental principles involved in all these operations. One is destruction of tissue; the other is its preservation and growth in a new direction. None of the authors, however, take into consideration the salient feature involved in all plastic operations of the conjunctiva, namely, the prevention of contact between two raw surfaces. In excision, strangulation, and transplantation, the cut edges of the conjunctiva must necessarily be apposed to the denuded surface of the cornea. To me, this accounts for the relapses which so frequently occur.

Fuchs has shown that with the growth of the pterygium there is associated a fibrillar degeneration of the cornea, which involves Bowman's membrane and even the superficial layers of the cornea proper. In dissecting off the wing-shaped formation, a raw uneven surface is exposed. If now the cut surface of the conjunctiva comes in contact with this, or the proliferation at the cornea-scleral margin, it will unite with it and is liable to be again drawn over the cornea.

During the last six years I have followed my own method which satisfactorily overcomes the objection just stated. Its underlying principle is to prevent re-adhesion by placing a mucous surface in contact with a raw one. To do this, I turn the triangular flap underneath, which action can be best described by the term, subvolution, (turning under). In order to carry out this rule I have made the operation in the following manner:

The pterygium is gathered up by the two branches of a fine forceps serrated at the ends. A knife is passed underneath it close to the cornea, and the triangular membrane is dissected off toward the apex. A suture with a needle at each end is passed through the apex. Both needles are inserted from above downward, thus leaving a loop of thread on its outer surface. The needles are now passed through the base from below outward. The points of puncture being the ends of parallel lines drawn from the punctures in the apex, and just far enough back, so that when the flap is turned upon itself underneath the base, the roll will correspond with the cornea-scleral margin.

The two ends of the suture are now firmly tied. We have induced a condition similar to gumming the flap of an envelope to its body. The under surface of the pterygium is brought in contact almost throughout its entire extent and adheres. A re-adhesion to the cornea is prevented by the roll of mucous membrane at the cornea-scleral margin.

This operation to a casual observer is similar to Galozowski's, of whose method I only recently learned while looking through ophthalmic literature. But the principle involved is entirely different. He aims at destruction of tissue. I, at its preservation and the prevention of the renewal of the growth, by apposing a smooth surface to a raw one.

The only seeming drawback to this procedure is the temporary unsightly thickening produced by the folding. This, however, disappears in a few days, and after a week or two flattens and settles down to the *niveau* of the adjacent parts of the eyeball. It adheres to the sclerotic. The raw surface of the cornea is covered with scar tissue and regenerated epithelium.

No matter how much the base of the pterygium contracts after dissection from the cornea, sufficient allowance can always be made by stitching the apex more or less forward.

The apex may be cut off, or not, depending entirely upon the degree of thickness. It is hardly necessary to state that the eye is bandaged and cleaned daily with a boric solution, and that the thread is removed after two or three days.

My operation is especially in large pterygia. Even in smaller ones, where the growth contracts considerably after having been separated from the cornea, it is followed often by good results. In these cases, adhesions will form, which will draw the turned flaps over the sclerotic up to the cornea-scleral margin.

My friend, Dr. Beard, informed me only two days ago that he had seen Dr. Landolt of Paris, turn the pterygium under as I do, and then sew the dissected conjunctiva from above and below over the denuded sclerotic. This latter act, however, I regard as an objectionable feature, since it defeats the very object of my operation by placing the cut edge of the conjunctiva in contact with the raw corneal surface.

34 Washington Street.

THE BOARD OF HEALTH OF PHILADELPHIA has adopted the report of its sanitary committee in regard to the compulsory registration of cases of pulmonary phthisis among the contagious diseases, and has decided in accordance with the recommendation of the College of Physicians, not to make such registration compulsory. At the same time, the infectious character of the sputa of consumptives being considered as fully established, physicians are requested to report localities needing disinfection, especially where a death has occurred, and they are urged to use proper precautions with regard to preventing the spread of the disease by destroying sputa and fomites. Circulars of information have been prepared for distribution to householders with instructions as to the sanitary measures thought advisable.

APPENDICITIS; WITH ORIGINAL REPORT AND ANALYSIS OF ONE HUNDRED AND FORTY-ONE HISTORIES AND LAPAROTOMIES FOR THAT DISEASE UNDER PERSONAL OBSERVATION.

BY J. B. MURPHY, M.D.

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Read before the Pan-American Medical Congress.

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(*Concluded from page 389*).

Case 110.—Date of operation Aug. 17, 1893. Operator, Dr. Murphy. Case occurred in practice of Dr. Pigall. R. S. B., aged 33 years; male. Post-Graduate Hospital. Patient was kicked on July 31 in the right side by a man. The same night, at 2 A.M., he was attacked with sudden pain in right iliac region, followed by fever, tenderness and tympanites. These symptoms continued up to the time of operation. Examination: Large tumor in right iliac region, extending almost to umbilicus; no fluctuation could be detected; no edema or redness of the wall; dull on percussion, both superficial and deep. A differential diagnosis was made between rupture of kidney, rupture of cecum and appendicitis in favor of the latter. Operation: Lateral incision; abscess wall adherent to anterior wall of abdomen; general peritoneal cavity not opened. Abscess circumscribed; drained; appendix not removed; recovery.

Case 111.—Date of operation Aug. 22, 1893. Operator, Dr. F. S. Hartmann. A. K., aged 18 years; female. Primary attack. Sickness began August 17 with colicky pains in region of stomach, followed by nausea and vomiting. Later, pains extended to lower part of abdomen. The following day fever appeared and the pain increased. Two days later patient felt practically well, and went about as usual. During the afternoon of this day a second severe attack developed with pain, nausea and vomiting, etc. The following day she felt perfectly well again, but a third similar attack occurred later in the day. She was first seen on this day. Temperature 104 degrees, pulse 114. Large induration in right iliac region. Operation on fifth day. Drainage of intraperitoneal abscess containing about three ounces of pus; three fecal stones removed; appendix not located; gauze drain; fecal fistula; recovery.

Case 112.—Date of operation Aug. 25, 1893. Operator, Dr. Murphy. F. H. C., Buffalo, aged 28 years; male. Case occurred in the practice of Dr. J. C. Cook of Hyde Park. Appendicitis began on morning of 24th at 7 A.M., with sudden attack of pain in right iliac region, followed by nausea and vomiting. Tenderness all over abdomen; very sensitive on deep pressure in right iliac region. Abdomen tympanitic; induration.

9 A.M. August 25, Pulse, 96, temperature, 98.3 degrees.
8 P.M. " " " 100 " 102 "
11 P.M. " " " 120 " 103 "

Operation 11:30 P.M. Lateral incision; peritoneal cavity opened. No adhesions to anterior wall. Appendix situated in front of cecum, surrounded by omentum. Appendix gangrenous; showed no perforation. Two drachms of pus outside of the appendix, which was amputated. Enterolith in appendix. Drainage; recovery. Remarks: Instructive in showing purulent infection of peritoneum (two drachms of pus) without perforation.

Case 113.—Date of operation Aug. 28, 1893. Operator, Dr. Murphy. Alexian Brothers' Hospital. P. McG. P., aged 27 years; male. Patient was taken with typical attack three days before operation. In spite of the very severe pain he worked the whole of the first day. The pain at first was general, but gradually became localized in right iliac region. There was marked muscular resistance, but no perceptible induration over appendix. Temperature at time of operation 100.3 degrees. Operation: Lateral incision, appendix situated two and one-half inches below the umbilicus and near the median line. Small circumscribed abscess; no adhesions to anterior wall; adhesions to omentum. Appendix perforated; fecal concretion; appendix excised; simple ligature of base; drained; recovery. Temperature at no time after operation exceeded 100.4 degrees.

Case 114.—Date of operation Aug. 28, 1893. Operator, Dr. Murphy. Mrs. C., aged 52 years. Occurred in practice of Dr. T. J. Conley. Attack began six days before operation with typical symptoms. A general suppurative peritonitis existed before operation. The operation showed that a circumscribed abscess existed and had ruptured. Operation: Temperature at time of operation 104 degrees, pulse 120. An incision was made and the abdominal cavity drained. Appendix removed; gall-bladder elongated and adherent to abscess wall. Patient died three days after operation, of sapremia. No autopsy.

Case 115.—Date of operation Aug. 31, 1893. Operator, Dr. Murphy. Male, R. H., aged 16 years. Case occurred in practice of Dr. J. C. Cook. Patient was suddenly taken sick at Waukegan (August 29) with nausea and vomiting; severe pain in right iliac region; had been eating grapes the day before. Temperature August 31, 101 degrees. Operation thirty-nine hours after onset of symptoms. Lateral incision. Appendix completely surrounded by omentum at least one and one-half inches thick, except at tip, where only the thin gangrenous peritoneal wall of appendix separated the pus in the appendix from the peritoneal cavity. This whole mass was ligated and amputated; a drain of iodoform gauze inserted. Patient made a rapid recovery. Silkworm gut was used to ligate the appendix; this had to be removed as it did not slough off or was not absorbed.

Case 116.—Date of operation Sept. 19, 1893. Chas. B., aged 11 years; male. Post-Graduate Hospital. Operation by Dr. Hartmann. Patient was taken sick on the morning of Sept. 16, 1893, with dizziness and headache. Went to bed at noon, slept, and on awaking at 3 P.M. dizziness and headache had increased and he had developed a fever and backache. Diarrhea and griping present. The following day (September 17) 6 P.M., pulse was 150, temperature 105 degrees; typhoid condition; abdomen somewhat tympanitic; general tenderness. September 18, A.M., pulse 135, temperature 105 degrees; general condition same; abdominal tenderness more marked in right iliac region; no induration, but slight nodules could be felt in this region, which at time of operation proved to be swollen mesenteric glands. Operation: Appendicisectomy; small iodoform gauze drain; sutured; appendix was non-adherent; external appearance normal except the end, which was somewhat swollen, was of rather unusual length, and upon being opened was found to contain a grape seed, and was ulcerated. Recovery. Ventral hernia; latter resulted from wound opening during a severe attack of typhoid fever which immediately followed the operation.

Case 117.—Date of operation Sept. 24, 1893. Operator, Dr. Murphy. K. S., aged 50 years; male. Case occurred in practice of Dr. Venn. Patient has had a number of previous attacks. Present attack began about seven days ago with severe local pain at umbilicus, nausea, vomiting, fever, tympanites. *Status præsens:* Large induration in right iliac region, dull on superficial percussion, resonant on deep percussion. No edema of wall. Temperature 101 degrees, pulse 90, at time of operation. Operation: Lateral incision; abscess opened without opening the unaffected portion of peritoneum; abscess circumscribed; appendix not removed. Drainage; recovery.

Case 118.—Date of operation September 24, 1893. Operator, Dr. Murphy. H. C., aged 22 years; male. Case occurred in practice of Dr. O'Malley. Date of attack September 13, beginning with pain in umbilical region, followed a few hours afterwards by vomiting. On September 15 temperature 103 degrees. On September 16 temperature normal, and remained so up to day of operation. Sept. 24, 1893, 8 A.M., pulse 104, temperature 99 degrees. The induration extended to the median line as high as umbilicus and within three inches of ninth costal cartilage. Resonant on deep percussion and flat on light percussion over that area. Operation: Lateral incision; abscess circumscribed, i.e., the abscess was opened directly through the abdomen without disturbing the uninfected portion of the peritoneum. Appendix not removed; drainage; recovery.

Case 119.—Date of operation Sept. 27, 1893. Operator, Dr. Murphy. Alexian Brothers' Hospital. W. McK., aged 15 years; male. Six months previous, patient had been operated upon for general suppurative peritonitis following appendicitis. The abdomen had been drained; appendix not located. The wound healed nicely, but has opened and discharged pus three times since the operation. The present operation was performed for the purpose of removing the sinus and determining the cause of the same. Operation: Incision two inches to the inner side of the opening. Peritoneal cavity opened. Cecum found adherent in the iliac fossa and to the lateral parietal peritoneum. Appendix imbedded in adhesions adherent to wall of cecum and parietal

wall; the end was considerably distended. The cavity of the appendix was shut off from the cavity of the cecum by a large cicatrix. There were three openings in the appendix. The cicatricial occlusion of the base of the appendix accounts for the recurrence of the attacks. Appendix removed. The opening in the side of the appendix was connected with the opening in the abdominal wall. Drainage; recovery.

Case 120.—Date of operation Sept. 28, 1893. Operator, Dr. Murphy. F. B., aged 35 years; male. Case occurred in practice of Drs. McKee and Pigall. During the night of Sept. 21, patient was attacked with severe abdominal pain. This was shortly followed by nausea and vomiting. The following morning patient's temperature was 102 degrees. Vomiting and pain continued during the following seven days. The patient became very tympanitic and rapidly lost strength. Examination Sept. 28. Patient's facial expression bad; skin cold; gulping every few minutes; abdomen extremely distended. Dull on light percussion over lower half. Temperature 101 degrees; pulse 135. Operation: Lateral incision; abdomen full of sero-purulent fluid. Endothelium of intestines eroded. The appendix was easily located and removed; adherent, gangrenous and perforated. Drained. Death thirty-six hours after operation.

Case 121.—Date of operation Oct. 2, 1893. Operator, Dr. F. S. Hartmann. E. S. W., aged 32 years; male. Evening of Sept. 30 patient experienced abdominal pain which was relieved by an anodyne. The following morning pain returned, but patient went around as usual. In the evening pain became very severe, and during the night was so intense that hypodermic injections were given. October 2, A.M., pulse 95, and strong; at noon pain became somewhat localized in the right iliac region. At 4:30, had a very severe chill. Examination 6:30 P.M.: Tympanites, general abdominal tenderness, more marked in lower portion of abdomen and right iliac region; induration in the latter location. Operation: Appendicisectomy; drainage of septic peritonitis; appendix gangrenous, perforated, containing enterolith; adhesions of bowel to parietal peritoneum, limited septic process above and to the inner side of incision; toward the pelvis no adhesions were to be felt. Patient died on October 4.

Postmortem revealed presence of general septic peritonitis; folds of intestine were agglutinated and presented many pockets of suppuration.

Case 122.—Date of operation Oct. 12, 1893. Operator, Dr. Murphy. Alexian Brothers' Hospital. Ed. B., aged 21 years; male. Onset Oct. 7, 1893, with intense abdominal pain, more severe in right iliac region. Treated "expectantly" for one week. Was up and about after the first few days. Vomiting continued at intervals from beginning of the attack. Patient collapsed two days prior to admission to Hospital, and when admitted in very bad condition; respirations irregular, almost entirely thoracic, pulse feeble and rapid, temperature 102 degrees; general pain and tympanites all over abdomen. Induration not palpable, most sensitive in right iliac region. Diagnosis: Appendicitis, perforation, general suppurative peritonitis. Operation: Lateral incision; about a pint of pus escaped. Appendix perforated; firmly adherent; not removed. No limiting adhesions; pus distributed throughout entire peritoneal cavity. Strands of gauze placed in all directions. No irrigation. Hypodermic injections of strych. sulph. gr. one-sixteenth every hour. Patient rallied completely in forty-eight hours. Temperature dropped to 99 and remained so; he improved rapidly until October 22, when he was attacked with a double pneumonia, and died Oct. 24, 1893. All of his abdominal symptoms had subsided before the attack of pneumonia began; the drainage, however, had not been removed. I have placed this case in the list of recoveries, as I believe the cause of death was independent of his peritonitis. This is one of the very few cases that rallied from the collapse of general suppurative peritonitis.

Case 123.—Date of operation Oct. 14, 1893. Mary S., aged 11 years. Operation by Dr. Hartmann. On October 8, immediately after dinner, patient vomited very freely; the rest of the day felt as well as usual. During the night she again vomited. Felt quite well on waking the following morning, October 9. During the afternoon developed pain in the region of the navel, which was relieved by hot applications. October 11, on awaking, felt quite sick; intense pain in abdomen almost constant; remained in bed that day; during night developed a fever, which continued until the time of operation. Operation: Appendicisectomy; small iodoform gauze drain; suture; appendix swollen and mucous membrane gangrenous; recovery.

Case 124.—Date of operation Oct. 23, 1893. Operator, Dr. Hartmann. Post-Graduate Hospital. Mrs. M. O'B., aged 27 years. Since May, 1892, had ten attacks; always suffered with intense colicky pains in epigastrium, accompanied by vomiting of bile. The attacks occurred mostly during the night, came and disappeared suddenly. October 21, 6 P.M., patient experienced continuous pain in epigastrium, accompanied by persistent vomiting lasting until 4 o'clock the following day, when, after having ceased for a couple of hours, returned again. First complained of pain in the right iliac region during afternoon of 22d; chills in afternoon of same day. Examination: No tympanites, slight induration, tenderness confined to the right iliac region. Operation: Drainage of local septic peritonitis; appendicisectomy; appendix gangrenous, perforated, adherent; recovery.

Case 125.—Date of operation, Oct. 23, 1893. Alexian Brothers' Hospital. N. E., aged 24 years; male. Operator, Dr. Murphy. History: Patient admitted to medical ward of Hospital October 11, with a history of having been sick for ten weeks. Bloody stools for five days previous to operation. Severe pain and tenderness over abdomen general; diarrhea during entire ten weeks. Passage once every hour since entrance to Hospital; some pain during micturition; temperature 101 degrees, pulse 104, respiration 25. October 13, twenty-five stools in twenty-four hours; October 16, lumbar myositis, most painful in right side. October 20, great tenderness with tumefaction and tympanites. October 23, Dr. Murphy saw patient, and decided to make an exploratory laparotomy. Usual incision; about half a pint of very offensive fecal smelling pus, as well as fragments of necrotic tissue (three inches long) escaped. The cavity had the appearance of a large diphtheritic abscess. Iodoform gauze used as drainage. Condition gradually became worse, and patient died at 2 P.M.

Postmortem: Total destruction of mucous membrane of colon, in parts resembling microscopically the appearance of honeycombed tissue. Mucous membrane loosened from submucous tissue, and gangrenous, having lost all resemblance of a mucous membrane. The incision was directly into the cecum. Appendix not affected in any way.

Case 126.—Date of operation Nov. 1, 1893. Operator, Dr. Murphy. Mrs. J. C., aged 44 years. Case occurred in the practice of Dr. Wm. E. Quine. Patient suffered from five attacks in the eight months preceding the operation; the last one, three weeks before the operation, was more severe than the former attacks. Began with severe pain in right iliac region and gradually extended all over abdomen. It was shortly followed by nausea and vomiting. Temperature reached 103 degrees. There was increased sensitiveness as well as induration in right iliac region; general tympanites shortly followed. After five days the symptoms began to subside and disappeared entirely. The operation was performed after all the inflammatory symptoms had subsided. Operation: Lateral incision; appendix found firmly adherent to side of cecum; distal end distended and somewhat edematous. Proximal end close to cecum very much contracted. Ligature applied at seat of contraction; packed with iodoform gauze; time of operation, six minutes; gauze removed in forty-eight hours, and sutures tied. Convalescence uneventful. Examination of appendix showed complete occlusion at the neck. Cicatrices at the side showing where it had ruptured into the cecum. Repeated accumulation in the appendix without an outlet was evidently the cause of the recurrences.

Case 127.—Date of operation Nov. 2, 1893. Operator, Dr. Murphy. Alexian Brothers' Hospital. A. B. L., male, age 26 years. Case occurred in practice of Dr. Hoelscher. Patient felt slightly indisposed Tuesday, October 30. November 1, severe pain in abdomen, exaggerated in right iliac region. Patient seen on that evening by Dr. Hoelscher, and transferred to Alexian Brothers' Hospital at once. Temperature 101 degrees.

November 2, 9 A.M. Patient had considerable pain during the night; is very sensitive over the appendix; no induration; temperature 100 degrees. Operation: Lateral incision; appendix reached without difficulty, very much distended, gangrenous on one side, had not ruptured, no infection of the peritoneum. Appendix drawn out of the wound, packed about with iodoform gauze, ligated, amputated, top-sewed, sutures inserted, iodoform gauze drain. Removed drain in twenty-four hours; sutures tied; time of operation, ten minutes. Patient made a rapid recovery. Highest temperature after operation 100.4 degrees.

Case 128.—Date of operation Nov. 4, 1893. Operator, Dr. Murphy. T. D., aged 44 years; male. Attack began evening

of October 26 with intense pain in the abdomen which continued for several hours; it was accompanied by nausea and vomiting. October 27, pain less severe, tympanitic, sensitive all over abdomen, most marked in right iliac region; very slight induration; pulse 90, temperature 103 degrees. Patient had a severe purulent bronchitis accompanying the attack. The symptoms continued until November 3, when he had a chill, followed by a temperature of 104 degrees. Following morning, laparotomy. Lateral incision; circumscribed abscess, retro-cecal. Packed around with iodoform gauze before opening. Appendix not removed. Following morning pulmonary symptoms more severe; bowels moved, temperature subsided to 101 degrees. Pulmonary symptoms continued to increase, and patient died on the fifth day. Postmortem not allowed.

Case 129.—Date of operation Nov. 5, 1893. Operator, Dr. Murphy. Miss N., aged 17 years. Case occurred in practice of Dr. Rose. October 22, 6 A.M., patient's illness commenced with a gnawing pain in the stomach; dressed herself with difficulty on account of soreness; not localized as far as she noticed. October 23 and 24 pain was accompanied with nausea and vomiting. Enema of hot water was given which relieved the symptoms. Induration felt. Patient did not manifest any serious symptoms for the following two weeks. Very slight elevation of temperature with slight digestive disturbances. Induration remained. Gives history of diarrhea with slight hemorrhage. November 5. Case seen by Dr. Murphy. Operation: Lateral incision; general peritoneal cavity not opened; appendix not removed; circumscribed abscess, a large quantity of pus; drainage; recovery.

Case 130.—Date of operation Nov. 10, 1893. Operator, Dr. Murphy. W. M., aged 12 years; male. Case occurred in practice of Dr. Hayes. On November 3 patient was suddenly attacked with pain in the right side. On November 4 nausea, vomiting, increase of pain which patient described as cramps. As the symptoms had not subsided, on the next day the attending physician was called in. Examination on November 5 temperature 105.5 degrees; pulse 120. Tympanites; abdominal tenderness general, but most marked in the right iliac region. An opiate was administered, which relieved pain. November 6, discontinuation of opiates resulted in return of pain. An operation was now advised, but was not consented to. The symptoms continued up to November 10, when an operation was agreed upon. Temperature at time of operation 99 degrees, pulse 90. Operation: Lateral incision; general peritoneal cavity opened; a general suppurative peritonitis present; the bowels were covered with flakes of pus; appendix not removed; drainage; recovery.

Case 131.—Date of operation Nov. 23, 1893. Operator, Dr. Wittwer. L. P., aged 16 years; male. Case occurred in practice of Dr. Bergeron. Family history good. Ten days before operation patient complained of pains around umbilicus, later localized in right iliac region; no vomiting; tympanites appeared after a few days; pain was more severe two days before operation; limbs constantly flexed. Last three days frequent urination; complete loss of appetite. *Status præsens:* Pinched features; limbs flexed; a very tympanitic abdomen, very sensitive to pressure; induration in right iliac region not well defined on account of tympanites; not much pain at time of operation unless abdomen was touched. Operation: Usual incision in right iliac region; upon entering the peritoneal cavity, the intestines were found agglutinated to the anterior abdominal wall. Upon severing the recent adhesions a large quantity of thin, purulent, very offensive pus escaped. Intestines found covered with large flakes of lymph. Finger was used in separating all the adhesions that could be reached, and finally a large abscess was opened which was in contact with the bladder. Glass drain was introduced into abscess cavity near bladder; four days later a smaller one took its place; gauze drain also used; appendix not removed. No enterolith found. Ten or twelve days after operation boy commenced to vomit and complained of pain in left iliac region. His bowels had not moved for four or five days, and all evidences of a second abscess to the left of the urinary bladder were present. With the intention of making a secondary operation, patient was again visited, but it was found that by pressure from the outside and insertion of another glass drain the second abscess could be drained without another incision. Boy had no further trouble. Jan. 24, 1894, boy is up and around and is feeling perfectly well.

Case 132.—Date of operation Nov. 25, 1893. Operator, Dr. Murphy. Charles B., aged 40 years; male. Case occurred in practice of Dr. Rohr. Patient gives a history which leads to suspicion that he had previous attacks of appendicitis. Present attack began forty-eight hours before operation, with sudden pain in abdomen, nausea, vomiting and moderate rise of temperature (about 101 degrees). On second day extreme tympanites developed, the pain had increased, no induration to be felt. Operation: Appendicisectomy; the general peritoneal cavity was opened, and a general suppurative peritonitis found to be present without adhesions. Pus covered the bowels to a great extent. The appendix was located, brought into the abdominal incision, ligated and amputated. The abdominal cavity drained with iodoform gauze. The temperature at no time was over 101 degrees, the pulse was very rapid, 140 at the time of operation. The appendix was gangrenous, not perforated, contained no foreign body. Patient had persistent vomiting for three days after operation, which then subsided and he made an uneventful recovery.

This is another illustration of extensive purulent infection of the peritoneal cavity forty-eight hours after the onset of symptoms, in which there was no perforation, but a gangrene of the wall. The bowel was eroded somewhat of its endothelium, but not sufficient to admit of the fatal sapremia.

Case 133.—Date of operation Nov. 28, 1893. Operator, Dr. Murphy. Alexian Brothers' Hospital. Thos. S., aged 32; Case occurred in the practice of Dr. Rohr. History: Patient states that he had two similar attacks. Present illness began November 26 with colicky pains after a dose of oleum ricini to move bowels. November 27, 10 P.M., pains had continued, accompanied by nausea and vomiting, and did not cease until November 28, 3 A.M. Pain localized in right iliac fossa. Examination: Tenderness and induration in right iliac fossa on pressure; temperature 104 before operation. Operation: November 28, 2 P.M. Usual incision; no circumscribed abscess; appendix almost entirely covered with omental adhesions. Had not perforated. However, pus oozed out through punctures made by forceps used for holding it up for ligation. Appendicisectomy; appendix found to contain about half a drachm of pus; its tissue was gangrenous. Appendix three inches long and thickness of little finger. Flakes of pus visible on opening peritoneal cavity. Time for entire operation, seven minutes. Temperature fell to normal after operation, and patient made an uneventful recovery.

Case 134.—Operation Dec. 19, 1893. Operator, Dr. Murphy. M. W., aged 28 years; female. Case occurred in practice of Dr. Berry. December 16 complained of being tired and feverish. December 17, slight soreness in right iliac region; December 18, tenderness over entire abdomen. Temperature 100 degrees, pulse 80. December 19, temperature 101 degrees, pulse 85, before operation. Operation: Lateral incision, intra-peritoneal, retro-cecal abscess around appendix; flakes of pus on bowels outside of abscess. Peritoneum protected with iodoform gauze. Abscess opened. Appendix adherent to posterior parietal wall, easily elevated and amputated. Drainage with iodoform gauze; recovery. Pathologic conditions: Circumscribed abscess; appendix perforated; flakes of pus on bowel outside of abscess.

Case 135.—Date of operation Dec. 20, 1893. Operator, Dr. Murphy. E., aged 26 years; female. History: December 7 typical attack. Pain at first general, later local; no tympanites; temperature 100 to 103 degrees in first forty-eight hours. First constipated, then had an attack of diarrhea. Marked induration over appendix. Operation: Lateral incision; protection of peritoneal cavity with iodoform gauze, and drainage of an intra-peritoneal abscess; glass drainage and iodoform gauze used. Glass drain removed in two days. Temperature remained at 101.5 degrees for ten days after operation; then ran up to 103 degrees, and remained so for forty-eight hours. Temperature again normal on twentieth day; recovery. Pathologic conditions: Intra-peritoneal abscess extending down into the pelvis; about six ounces of a very thick creamy pus containing the appendix escaped; latter was entirely gangrenous and perforated at its base.

Case 136.—Date of operation Dec. 22, 1893. Operator, Dr. Murphy. O. S., aged 20 years, male. Case occurred in the practice of Dr. Hoelscher. On November 22 patient was attacked with sudden, severe, colicky pains in abdomen causing indisposition for a couple of days, after which he was able to be about again. These attacks occurred occasionally for the following twenty-six days. At no time was he well, though able to be about. On December 18 the pain became extremely severe, was located in right iliac region, and was shortly followed by nausea and vomiting. It increased in intensity; the temperature rose to 101. This condition continued up to the time of operation, four days

later. Examination: Abdomen tympanitic, uniformly distended, no induration; excessively tender in right iliac region. Operation: Lateral incision; general peritoneal cavity opened; an abscess of considerable size was seen situated around the head of the colon and in the retro-cecal fossa. General peritoneal cavity protected with iodoform gauze packing; abscess opened; about eight ounces of pus escaped, and in it the gangrenous appendix. Glass drain; recovery. Pathologic conditions: Appendix completely gangrenous and separated from its attachment at the base; all of its coats were macerated except the peritoneal, which could be filled with water and resembled the rubber of a toy balloon. Two fecal stones.

Case 137.—Date of operation Dec. 29, 1893. Operator, Dr. Murphy. Mrs. G., aged 24 years. When performing laparotomy for tubal disease, the appendix was found very much elongated, congested, swollen and adherent to side of uterus and proximal end of right tube, causing traction upon cecum, and undoubtedly accounted for some of the symptoms from which she was complaining; recovery.

Case 138.—Date of operation Dec. 31, 1893. Operator, Dr. Murphy. Case occurred in practice of Dr. Weatherly. J. L., aged 21 years; male. Patient was seized with a chill December 29; severe pain when walking. This pain lasted through the night, and was accompanied by vomiting and fever. Dr. Weatherly saw the case December 30 at 8 P.M. Patient was sent to hospital December 31, P.M., temperature 101 degrees, pulse 83. Operation: Appendix found partially adherent to liver, two inches necrotic, but not perforated; not covered by omentum. No foreign body; when appendix was elevated, pus oozed through the pores in its wall, showing that perforation was about to take place. The mucous membrane had entirely disappeared and was commingled with the fluid débris. No pus outside of appendix; twenty-four hours' drainage; recovery.

Case 139.—Date of operation Jan. 4, 1894. Operator, Dr. Murphy. P. H. M., aged 25 years; male. Case occurred in practice of Dr. Geo. Barnett, Ishpeming, Mich. Recurrent appendicitis. First attack May 30, 1891, sick for six days; second attack Sept. 23, 1892, sick for ten days; third attack Dec. 24, 1893; began with sudden severe pain in the abdomen, followed by vomiting, great tenderness; temperature 103 degrees; after two days, temperature dropped to 99.5 degrees, and remained so until December 31, when it suddenly rose to 104.2 degrees, with pulse 120. Marked tumor was present in right iliac region at that time. Operation was urged by the Doctor and consented to. Examination: No tympanites, no general abdominal tenderness, a distinct tumor in right iliac region, which appeared to come close to the skin; temperature 100 degrees. Operation: Lateral incision into an abscess, which had already penetrated the walls of the abdomen and invaded the subcutaneous cellular tissue. This opening was enlarged by the finger, and the abscess cavity within the abdomen examined. No fecal stone. Appendix could not be located. Drainage; recovery.

Case 140.—Date of operation Jan. 6, 1894. Operator, Dr. Murphy. L. B. C., Detroit, Mich., 35 years of age; male. Case occurred in the practice of Dr. Riese. Patient was attacked with severe pain in the right side of abdomen, followed by nausea and severe vomiting. Temperature on morning of operation 101 degrees; no induration; no tympanites. A very sensitive point could be felt in right iliac region; the appendix could be outlined. Operation: Lateral incision: Appendicisectomy; gauze drainage; sutures inserted but not tied. The appendix was not adherent; appeared normal on its peritoneal surface, although very hard to the touch. Mucous membrane inflamed, swollen, gangrenous in spots, contained a number of seeds. Gauze drain removed in twenty-four hours; sutures tied; recovery.

Case 141.—Date of operation Jan. 15, 1894. Operator, Dr. Murphy. Alexian Brothers' Hospital. C. G., aged 30 years; male. Present illness began fifteen days before operation with pain in abdomen, accompanied by fever and sweats. The pain gradually centralized in the right iliac region; was able to be up and about and came to office day of operation. Examination: No tympanites; induration and tenderness in the ileo-cecal region, extending down to pubes. Nothing to be felt from the rectum. Operation: Lateral incision; general peritoneal cavity opened; tip of appendix firmly adherent over iliac vessels; liberated with difficulty; body free; removed. Sutures inserted, but not tied; iodoform gauze drain; the distal half inch of a very much elongated appendix (four inches) was swollen to three times the size of the remaining portion. Minute gangrenous spots on mucous surface. No perforation; gauze drain removed in twenty-four hours, and sutures tied. Recovery.

Case 142.—Date of operation Jan. 30, 1894. Operator, Dr. Wittwer. L., aged 30 years; male. Occurred in the practice of Dr. Bergeron. Three days previous to operation patient was suddenly attacked with pain in right iliac region; this was followed within an hour by vomiting; temperature 102 degrees. The following day the abdomen was tympanitic and very tender on right side. On morning of the third day, patient had a severe chill. Temperature at time of operation 100.5 degrees. Operation: Lateral incision over induration which was more marked under the anesthetic. General peritoneal cavity opened. Flakes of pus over cecum and omentum. Appendix adherent, necrotic; small circumscribed abscess at base, containing thin sero-purulent fluid. Adhesions liberated; appendix ligated; iodoform gauze drain; recovery. Pathologic conditions: Appendix perforated in one spot, also showing two other gangrenous places ready to perforate.

Case 143.—Date of operation Feb. 6, 1894. Operator, Dr. Murphy. J. M., aged 19 years; female. Case occurred in practice of Dr. Berry. Primary attack. Present illness commenced three and one-half days prior to operation, with intense pain in right iliac region, which rapidly spread over entire abdomen. Nausea and vomiting followed within an hour. All these symptoms and tympanites were present on second day. Vesical tenesmus severe. Examination: Time of operation, temperature 102 degrees, pulse 120. Very anxious expression; mental exhilaration, great thirst, gulping, extreme tympanites; a complete absence of peristalsis; not a sound could be heard in any portion of the abdomen, for fully ten minutes. No dulness either on light or deep percussion. Operation: Lateral incision; general peritoneal cavity opened; at once a small quantity of sero-purulent fluid escaped, which was very offensive. There were no limiting adhesions. Every separation of the coils of intestines was followed by an additional discharge. Douglas' pouch full of pus. Appendix adherent to fundus of bladder, liberated and removed without rupturing. Iodoform gauze and glass drainage. Intestines denuded of their endothelium, resembling a blistered surface. Symptoms of sapremia continued and patient died twenty-two hours after operation. General suppurative peritonitis. Pathologic conditions: Appendix enlarged to size of thumb; gangrenous, full of pus; enterolith size of grape seed; no perforation, still, general suppurative peritonitis.

Case 144.—Date of operation Feb. 9, 1894. W., aged 19 years; male. Operator, Dr. Murphy. Case occurred in the practice of Dr. J. M. Auld, who made a diagnosis and advised operation three hours after onset of attack for which he deserves the congratulations of the profession and the patient. Patient had a similar attack (first one) a year ago, and a second three and one-half months before the present one. He was operated upon at the time of the second attack; a circumscribed abscess was drained; the appendix was not removed. The present attack began day before operation with sudden pain, followed by nausea and vomiting. The patient was brought to the Cook County Hospital on the first day of sickness, and early the next morning he was operated upon, eighteen hours after onset. Temperature at the time of operation 99 degrees, pulse 100. Slight tympanites; no induration to be felt. Operation: Lateral incision an inch towards the median line from the old scar. General peritoneal cavity opened. Sero-purulent fluid around the head of the colon. Peritoneum congested, but not abraded. The appendix was situated across the iliac vessels, adherent behind, half of it hung over brim of pelvis. Appendix and cecum were elevated out of the wound. About three drachms of sero-purulent fluid was sponged out. There were no limiting adhesions around the pus. The seat of penetration of infection could be easily recognized on the peritoneal surface of the appendix. Appendix ligated, amputated; gauze drain; recovery. Pathologic conditions: The proximal two-thirds of the mucous membrane of appendix greatly swollen. A small ulcer existed where the infection penetrated the wall, but there was no perforation. What could have been the result in this case under expectant treatment?

Case 145.—Date of operation Feb. 12, 1894. Operators, Drs. Murphy and Verity. Mrs. E. P., aged 42 years. Patient had first attack in July, 1893. Had a second attack Jan. 14, 1894, which commenced with severe pain just below the margin of the last rib. This was accompanied by nausea, but no vomiting. For the first few days there was fever; temperature not taken. This subsided, but the pain and tenderness continued until the time of operation. Patient

had never been jaundiced. Examination: With anesthetic; an induration extending from the margin of the ninth costal cartilage downward three inches could be felt distinctly. It was stationary during the respiratory act. It could not be separated from the abdominal wall, nor could it be displaced to the left. It could not be separated from the kidney, nor could the kidney be outlined. Operation: Temperature at the time of operation normal. Incision over induration. Peritoneal cavity opened. Colon was found adherent to lateral wall of the abdomen, just below the margin of the ribs. The adhesions were separated and the remains of an abscess detected; no pus; the cecum was adherent to and folded upon the posterior surface of the ascending colon. The appendix was found perforated at its tip communicating with the abscess cavity. It could be seen where the abscess had emptied into the posterior wall of the colon at its hepatic flexure. Appendix ligated, amputated. Recovery.

Remarks: This is the first time I have found the cecum folded on to the posterior surface of the colon. The abscess was situated just below the edge of the liver.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

(*Continued from page 391*).

DISCUSSION.

DR. MORTON thought all must feel gratified at having papers presented to the ASSOCIATION from such eminent foreign writers.

THE PRESIDENT exhibited an apparatus which the Kidder Manufacturing Company had constructed for him. It was a commutator attached to a motor so that an alternating current could be sent through the primary of his induction coil. The secondary current was used in the usual manner. If the alternations be made too frequently, sufficient time is not allowed for complete magnetization and de-magnetization of the core and the effect is nil. When revolving 2,400 times per minute, the apparatus give 800 alternations per second. At this speed with five Leclanché cells in the primary, the current was almost imperceptible to the hand with the bipolar electrode, but produced a very appreciable effect in the vagina. The reed vibrator on his faradic apparatus was said to give 300 to 350 vibrations per second, but on comparing it with the interruptions obtained from other forms of apparatus, it seemed to him that the frequency was not so great.

The speaker said he thought the alternating current through its action upon the vaso-motor supply relieved pelvic congestion and pain consequent upon it. He had been able repeatedly to cure active endometritis by bipolar faradization. This might seem a remarkable statement, but in many instances endometritis is secondary to pelvic congestion, and by relieving this congestion the endometritis is cured. In many instances where the canal is not patulous, occasional applications with the negative pole were given to facilitate drainage, but these same applications had not proven, in themselves, competent to bring about a cure. It is in this way that he claimed to cure certain diseased conditions of the appendages. Having first assured himself of free drainage from the uterus he was satisfied that in many instances the tubes could be emptied into the uterus. He believed with Bland Sutton that in the great majority of cases the tube is only obstructed by tumefaction of the mucous membrane, and if this be removed, a result quite possible by a proper application of electricity, drainage can be secured through the uterine cavity. It is thus, in direct obedience to one of the important laws of surgery—the maintenance of drainage—that he cured these cases, using electricity to accomplish this end.

DR. KELLOGG said he had been much interested in the apparatus just described, and in the remarks. He had been doing work in this line. About a year and a half ago he began experimenting with the arc light current of 12,000 alternations per minute. As would be seen from the graphic curve which he exhibited, it was in reality a sinusoidal current. He first uses a rheostat, reducing the current by a transformer to fifty volts, and then passing it through an induction coil. The curve shown was from a secondary current from the alternating arc light current. It produces a very strong humming sound, and this sound is present with an instrument made without a rheotome. This point is very interesting. Tests made with the esthesiometer showed that in some cases the effect of this current was to reduce sensation one-half. The apparatus described by Dr. Goelet really gave an interrupted current.

(The discussion was here interrupted to allow of Drs. Morton and Kellogg demonstrating to the members individually the character of the sinusoidal currents produced by their machines).

DR. MARTIN asked why the muscular contractions were so much more distinct in one arm than in the other.

DR. MASSEY thought it questionable whether the amperage of the current from Dr. Morton's machine would be sufficient for practical purposes, and he asked whether it could be made as good as Dr. Kellogg's.

MR. SMILES replied that it was a simple matter of supply of current to the field.

The power of the machine was as great as could be used upon any patient, and quite sufficient for all purposes.

DR. A. LAPTHORN SMITH said it had been claimed that the sinusoidal current increases nutrition, but without wishing to dampen the enthusiasm of some of our investigators, he would remind all that the same increase in nutrition—increased interchange of oxygen and excretion of urea—is accomplished by walking upstairs. The speaker asked why the interruptions of the fine wire coil produced anesthesia. The point raised that it is not the length of the fine wire, but the number of turns of wire which gives the peculiar effect is valuable, and is certainly not generally known. He had found by personal experiment that a piece of ferrotype metal would give very fine buzzing vibrations, the tone produced being like that made by a mosquito.

After a careful reading of Apostoli's monograph, he found that every effect claimed for the sinusoidal current is obtained by fine wire faradism. After the enthusiasm over the sinusoidal current has subsided, we shall probably come back to the fact that fine rapid vibrations are like the rapid strokes of a hammer, which may be used to drive in a nail with very little force, if the blows be very frequently repeated.

It is the alternate relaxation and contraction of the muscles which increases their nutrition. A muscle is weakened by prolonged contraction, but every time it relaxes and contracts, owing to the valves in the veins, the blood is hurried on towards the heart. Physiology teaches that one of the principal aids in circulation is muscular contraction, and therefore the current which causes spasm of a muscle is defeating our purpose. From this it follows that the current must be decidedly interrupted.

DR. KELLOGG then showed his method of obtaining a graphic record of the sinusoidal current.

DR. HERDMAN criticised the demonstration by saying that the patient should be interpolated.

DR. KELLOGG replied that this would not make the slightest difference in the curve.

DR. HERDMAN said he had had very little personal experience in dealing with these high frequency currents. He had been using for the past three years the Thomson-Houston dynamo current, giving alternations of about 10,000 per minute. This is the current used for incandescent lighting, only reduced to fifty-two volts in his office. It is an agreeable and bearable current, but has a peculiar effect on the vaso-motor system. Dr. Goelet had referred to the effect on the vascular tissue. In one of his patients this result was exceedingly remarkable. The patient was suffering from a peculiar nervous prostration, associated with purpura and frequent suffusions about the face, ears and eyes. To tone up his vaso-motor constrictors, every form of electricity at hand was tried, but nothing exerted such a satisfactory effect as this dynamo current; it seemed to tone him up and relieve his mental depression more rapidly than anything else. Its nutritional effect is no doubt due to an immediate action on the vaso-motor system, and perhaps directly upon the muscular structures. He could not account for the increased consumption of oxygen and excretion of urea except in some such way; certainly it is not in the action upon the striped muscular tissue.

Within the range of harmonics, a certain range of vibration can be determined accurately by musical tones. Some of the statements in Dr. Hutchinson's paper he considered rather speculative, but we must admit that the vibrations producing musical tones do have some special physiologic effects, but the range is limited, for we obtain remarkable effects in interruptions beyond those corresponding to musical tones.

DR. ENGELMAN thought the faradic current had been handled in a pitiable way, and new systems brought forward. He had seen the work of these foreign investigators, and had examined their patients, yet he had seen no results which he could not obtain from the faradic current; in fact, they claim very little.

The faradic apparatus has been spoken of as it was formerly. For instance, Dr. Kellogg objected to it, and very justly, because the vibrator gives an irregular current. We know that every variation of the vibrator changes the current, and it is for these reasons that he had introduced the instrument with the separate current to actuate the vibrator, and a separate coil current. For a rapid rate of vibration, a strong current is required to actuate the vibrator, and hence a mild current can not be used on the patient. If they are separated, one can obtain any rate of interruption and yet not affect the coil current. Determining the rate of vibration by the musical note is good in theory, but it is bad in practice on account of the differences in ears, and the time consumed in testing by this method. Faradism, as it will probably be used in the future, will do away with these objections and faradic apparatus thus regulated will enable one to do a vast deal more than at present. Our committee on coils has told us nothing about coils; we have simply heard objections to these instruments. We must have coils of definite construction for definite purposes.

The speaker said he had had no experience with the sinusoidal current, but from what he had seen of it from those who introduced it, he had not been tempted to experiment with it.

DR. MORTON, in closing the discussion, said it had brought out many new lines of thought which amply justified the expenditure of so much time upon it. In regard to the theory of interfering vibrations referred to in Dr. Hutchinson's paper, if he understood the author correctly, we are given 540 vibrations per second, and are asked to assume that this rate and that of nerve impulses—11 to 19 per second—interfere. This he could not comprehend. He must now, as last year, deprecate the fact that electro-anesthesia was not demonstrated to the ASSOCIATION, for many, including himself, do not believe that electricity can produce a true anesthesia, although admitting moderate analgesic effects.

He thought Dr. Engelman's position was well taken, for the criticisms concerning induction coil currents were based on the assumption that those currents were excited by the ordinary vibrator, which we all admit is very unreliable and unsatisfactory.

The following paper on

PRESENT POSITION OF THE ELECTRICAL TREATMENT IN ECTOPIC GESTATION,

by DR. A. BROTHERS of New York City, was then read by title:

This treatment was first employed by Bachetti in Italy in 1853, and later in England in 1866, by Braxton Hicks. In this country the first case treated by this method occurred in the practice of Allen of Philadelphia, in 1869, and since then it has remained an almost purely American plan of treatment. In a paper which I wrote five years ago, (*American Journal of Obstetrics*, May, 1888) I collected statistics of forty-three cases in which this treatment was resorted to with only one death. In a later paper on the "Subsequent Behavior of Cases Treated by Electricity," (*American Journal of Obstetrics*, 1890, Vol. xxiii, p. 113) I find that twenty-five patients whom I had been able to trace were doing well after a lapse of one to eight years, and that not one of this number had been compelled to undergo secondary operations. Many of these patients, it is only fair to add, carried traces of the old trouble but they gave rise to no inconvenience.

Within the last few years the epidemic of laparotomy fever which originated in Europe has invaded our shores and spread over our continent to such an extent as to temporarily displace the electrical treatment from its deserved position. As a result, the literature of the past few years shows a smaller number of published cases than we should have expected, judging from the past history of this treatment. There still exists, however, a certain proportion of very able physicians who continue to adhere to their convictions and employ the electrical method under judicious restrictions wherever it is properly indicated.

To bring the subject partially down to the present, I have looked over the literature at my command and have been able to prepare the accompanying table, which represents nearly all the cases which have been published up to the time of writing:

This table represents eighty-five cases of extra-uterine pregnany in which electricity was employed to destroy the fetus. The list is not complete, for a certain number of cases must have been overlooked, and other cases have not as yet been published.

In two cases (60 and 61) the treatment apparently failed in the hands of very able men—Coe and Wenning—but subsequent laparotomy showed the diagnosis to have been at fault, the pregnancy being normal in both cases. Coe saved his patient after she aborted, but Wenning, who had resorted also to aspiration, was unfortunate in losing his case. In the case of Lewis (81) electricity was discarded and laparotomy done. This patient recovered. In one of Blackwood's cases (62) the extra-uterine mass had shrunk two years later one-half in size and he advised the use of galvanism to assist in its absorption but the patient fell into the hands of a specialist who performed laparotomy from which she died. In none of these cases did the electrical treatment do any harm.

Collapse during the employment of this agent has occurred in the cases of Mundé (23), Janvrin (34), and Coe (54), but only one of these—that of Janvrin—proved fatal. In two of Blackwood's cases (63 and 64) symptoms of internal hemorrhage (such as shock, faintness, debility, etc.), supervened but both patients nevertheless made good recoveries under the electrical treatment.

Aspiration was associated with electricity in the three cases of Hicks (2), Lusk (30), and Wenning (61). Hicks and Wenning lost their patients—the latter supplementing the aspiration by a laparotomy—but Lusk saved his case after the fetus was discharged through a vaginal rent.

In five cases—those of McBurney (6), Garrigues (29), Grandin and Cole (83), Blackwood (67), and Carriker (84)—the fetus was displaced from the tube into the uterine cavity. These cases were all of the interstitial variety.

The case of Landis (5 and 11) is unique in that the accident of extra-uterine pregnancy occurred twice in the same patient and was twice successfully treated by electricity.

In Westcott's case (17) the extra-uterine pregnancy was associated with normal pregnancy which was not disturbed by the electrical treatment and the patient of Bierwirth (52) was simultaneously suffering from typhoid fever.

After the death of the fetus by electricity it was discharged through vaginal or rectal rents in four cases—those of Lusk (30), Chadwick (39), and Blackwood (65 and 66)—with ultimate recovery of all the cases.

Only one death—that of Janvrin (34)—can be attributed to the use of electricity *in seventy-eight cases where this agent has been used without puncture;* and in this case there were symptoms of hemorrhage previous to the resort to electricity.

The nature of the current employed has not been the same in the reported cases. Faradism was employed in twenty-seven cases, galvanism in twenty-five cases, either current (not stated) in nine cases, both currents successively in sixteen cases, electro-puncture in seven cases, statical electricity in one case. Of the seven cases treated by electro-puncture there were five recoveries and two deaths. This proves the method to be exceedingly dangerous—the bad results being due rather to the accompanying puncture than to the electricity. Similar bad results have followed the use of simple puncture with aspiration or with the injection of drugs, even where no electricity was used. In my first paper I referred to fourteen cases of failure or death after the use of simple tapping or the injection of drugs.

Although the electrical treatment is chiefly American, my table shows the interesting facts that it has been employed five times in Russia, five times in England, and once in Italy, Canada, Germany, France and Australia.

The treatment of extra-uterine pregnancy by electricity has in late years been so violently assailed that it may be well just here to quote the most recent opinions of some of the most eminent practitioners and writers who continue to approve of the method. Playfair, in his last edition, ("A Treatise on the Science and Practice of Midwifery," London, 1889) says: "This practice is perfectly safe, and there can be no rational objection to its being tried." Lusk, in the last edition of his work on "The Science and Art of Midwifery," (New York, 1892) says: "All men are not experts in pelvic surgery. The danger which threatens the life of the patient is often imminent and assistance from afar is not always easy to obtain. Under these conditions the indication for treatment is plainly the adoption of measures to destroy the life of the fetus, and thus, by arresting the growth of the ovum, to diminish the chances of rupture and

Table of Cases of Ectopic Gestation Treated by Electricity (1853–1892).

No.	Case of	Nation'l'ty	Reported in	Current used.	Result.	Remarks.
1	Bachetti	Italy	Trans. Am. Gyn. Soc., 1882	Electro-puncture	Recovery.	
2	Hicks	England.	" "	Faradism	Death	Puncture resorted to after electricity was abandoned.
3	Allen	U. S.	" "	"	Recovery.	
4	Allen	"	Jour. of Obst., 1872, Vol. 5	"	"	
5	Landis	"	Ohio Med. & Surg. Jour., Oct., 1877	"	"	
6	McBurney	"	N.Y. Med. Jour., March, 1878	Galvanism	"	Fetus discharged through vagina.
7	Reeve	"	Trans. Am. Gyn. Soc., 1879	Faradism	"	
8	Harrison	"	" 1882	"	"	
9	Lusk	"	Jour. of Obst., April, 1881	"	"	
10	Wilson	"	Trans. Am. Gyn. Soc., 1882	"	"	
11	Landis	"	Med. News, Aug. 8, 1882	"	"	Same as No. 5 seen four years later.
12	Billington	"	Trans. Am. Gyn. Soc., 1882	Galvanism	"	
13	B. McE. Emmet	"	Jour. of Obst., Feb., 1882	"	"	
14	Garrigues	"	" Sept., 1882	Faradism	"	
15	Herrick	"	Trans. Am. Gyn. Soc., 1882	Galvanism	"	
16	Hochmann	Germany.	Allgem. Med. Centrig., April 21, 1883	Statical electricity	"	
17	Westcott	U. S.	Med. and Surg. Electricity, by Beard & Rockwell	Galvanism	"	Associated normal pregnancy not disturbed.
18	Rookwell	"	" "	"	"	
19	Sims	"	" "	"	"	
20	Cushner	"	Trans. Am. Gyn. Soc., 1884	Faradism	"	
21	Cocks	"	" "	later Galvanism	"	
22	Lambert	"	" "	Galvanism	"	
23	Mundé	"	Jour. of Obst., Oct., 1884	later Faradism	"	Collapse after first application.
24	Berlin	"	Bos. Med. & Sur. J., Sept., 1884	Galvanism	"	
25	Sibbald	"	Polyclinic, 1884, No. 15	"	"	
26	Briggs	"	Med. News, July 11, 1885	Faradism	"	
27	Stoddard	"	" "	"	"	
28	Lusk	"	Jour. of Obst., Aug., 1885	"	"	
29	Garrigues	"	Med. News, Dec. 12, 1885	"	"	Fetus expelled into uterine cavity, continued to grow, and born alive at eight months.
30	Lusk	"	Med. Rec., Jan. 23, 1886	"	"	Previous puncture; discharge of fetus and removal of placenta through vaginal rent.
31	Goelet	"	" June 26, 1886	Galvanism	"	
32	Aveling	England	Brit. Med. Jour., Dec. 4, 1886	Faradism	"	
33	Gardiner	Canada.	" "	"	"	
34	Janvrin	U. S.	Trans. Am. Gyn. Soc., 1886	Galvanism	Death	Previous collapse. After third application death from internal hemorrhage.
35	Petch	England	Brit. Med. Jour., Dec. 4, 1886	Galvano-puncture	Recovery.	
36	Trush	U. S.	Jour. of Obst., Dec., 1886	Faradism	"	
37	Van de Warker	"	Trans. Am. Gyn. Soc., 1887	"	"	
38	Sims	"	Annals of Gyn., Jan., 1888	Galvanism	"	
39	Chadwick	"	Trans. Am. Gyn. Soc., 1887	"	"	Fetus later extracted through vaginal rent.
40	Mann	"	Med. News, July 11, 1885	Faradism	"	
41	Page	"	Jour. of Obst., April, 1887	Galvanism	"	
42	Harrison	"	" "	"	"	
43	A. Brothers	"	" May, 1888	Faradism	"	
44	Taylor	"	Med. Rec., June 29, 1889	Galvanism	"	
45	Walker	"	" Nov. 16, 1889	Faradism	"	
46	Galabin	France	Arch. de Tocologie, xvi, 1889	Galvano-puncture	"	
47	Kletzsch	U. S.	Jour. of Obst., 1888, Vol. xxi	Faradism	"	
48	Buckmaster	"	Med. News, 1888, Vol. liii	Galvanism	"	
49	Duncan & Stevenson	England	Barthol Hosp. Repts., 1885	Faradism, later Galv.-punct.	Death	
50	Boulton & Stevenson	"	Brit. Gyn. Jour., 1888, Vol. iv.	Electro-puncture	"	
51	Benton	U. S.	Gaillard's Med. Jour., 1888, p. 548	Faradism	Recovery.	
52	Bierwirth	"	" " p. 552	"	"	Complicating typhoid fever.
53	Edebohls	"	Med. Rec., Dec. 7, 1889	"	"	
54	Coe	"	Jour. of Obst., 1890, p. 394	"	"	Rupture of sac; recovery without laparotomy.
55	Hanks	"	" " p. 397	Galvanism	"	
56	Hanks	"	" "	"	"	
57	Hanks	"	" "	"	"	
58	Malcolm McLean	"	" " p. 397	"	"	
59	Malcolm McLean	"	" "	"	"	
60	Coe	"	" " p. 95	"	"	Failing with electricity, performed laparotomy and found normal pregnancy; abortion; recovery.
61	Wenning	"	" " p. 155	Faradism, later Galvanism	Death	Later aspiration; then laparotomy when dextro-torsion of the uterus was found.
62	Blackwood	"	Times & Reg., 1890, Vol. vii, also private correspondence	" "	Recovery.	Died two years later during laparotomy done to remove the remaining mass.
63	Blackwood	"	" "	" "	"	Internal hemorrhage from previous rupture.
64	Blackwood	"	" "	" "	"	" " " "
65	Blackwood	"	" "	" "	"	Fetal debris discharged through rectum.
66	Blackwood	"	" "	" "	"	Fetal debris discharged through vagina.
67	Blackwood	"	" "	" "	"	Fetus expelled into uterine cavity.
68 to 74	Blackwood	"	" "	" "	"	
75	Smouse	"	Trans. Iowa Med. Soc., 1890 Index Medicus, 1890	Faradism	"	
76	Martin	Australia.	Aus. Med. Gaz., Vol. ix, p. 163	Faradism	"	
77	Nedswetsky	Russia	Ande. Gyn. et Obst., 1890, p. 44	Galvanism	"	
78	Nedswetsky	"	" "	"	"	
79	Warnek	"	" "	Electro-puncture	"	
80	Kalabine	"	" "	Galv., later Electro-puncture	"	
81	Lewis	U. S.	Trans. Col. Phys., 1891	Faradism	"	Abdominal section after discarding electricity.
82	St. John	"	Jour. Am. Med. Assn., 1892	Galvanism	"	
83	Grandin & Cole	"	N. Y. Gyn. & Obst., 1892, p. 31	"	"	Fetus expelled into uterus, where it continued to grow.
84	Carriker	"	Eclectic Med. Jour., 1892	"	"	Fetus expelled through uterus.
85	Nedoroloff	Russia	Med. Obozt. Mosk., 1892 Index Medicus, 1892	"	"	

hemorrhage." In a personal interview with Prof. Lusk he stated that he was as much interested in the electrical treatment as ever, but of late had only met cases in which previous rupture allowed of none but operative interference. He was perfectly convinced of the efficacy of electrical treatment in suitable cases and was perfectly sure that in the cases in which he had successfully resorted to it there was no possibility of a mistake in diagnosis.

Prof. T. G. Thomas, early in the summer, also told me that he continued to be a firm believer in the efficacy of electricity in the treatment of ectopic gestation. In the last edition of his work on "Diseases of Women," (Philadelphia, 1891), revised by P. F. Mundé, he says: "At one extreme, stand able and conservative practitioners who appear to favor the position, that as a very general rule, we should stand calmly by with folded arms and accept without effort or resistance the terrible chances of death which attend these cases. At the other, we see enthusiastic ones with strong surgical proclivities, who would apparently resort to laparotomy in every case in which diagnosis is possible. On a middle ground, one lying between these extremes, the truly conservative surgeon will find his appropriate position."

Although Pozzi in his "Treatise on Gynecology" (American Edition, New York, 1892) condemns the use of electricity, the able translator of this work (Wells) says: "If we have a case of extra-uterine pregnancy in the early months it is safe to destroy the fetus by electricity and keep the patient in bed until absorption has noticeably commenced."

Parvin in his work on "The Science and Art of Obstetrics" (Philadelphia, 1890) says: "Throwing aside all doubtful cases, there remains a strong argument from actual experience in favor of the treatment of ectopic gestation, prior to the rupture of the fetal cyst, by electricity."

The works on electricity in its relation to gynecology —such as those of Goelet ("The Electro-Therapeutics of Gynecology," Detroit, 1892) and Grandin and Gunning ("Practical Treatise on Electricity in Gynecology," New York, 1891)—are likewise strongly in favor of the employment of electricity in the treatment of early cases of ectopic gestation. To save entering into further detail, I will simply add that authorities like Byford, Mann, Skene and Wilson have also within the past few years expressed themselves in favor of this plan of treatment.

The Boston Medical Society at its meeting held on Nov. 12, 1892, received the report of the chairman of a committee appointed to investigate the present condition of medical opinion with regard to the subject of extra-uterine pregnancy (E. Reynolds, *Boston Medical and Surgical Journal*, January, 1893, Vol. cxxviii, p. 107). The report reads as follows: "Immediate celiotomy, so soon as the diagnosis is established, is then, in the judgment of your committee, the only treatment which should be considered before rupture of the tube." If this committee can spare the time to study the facts gathered in this paper, I think it may in its charity modify its former conclusion and allow the electrical method a small place in the treatment of some cases of extra-uterine pregnancy. The fact is that most of those loudest in denouncing and ridiculing the electrical treatment have never tried it. The present paper attempts to deal with facts and not opinions—and facts will ever remain indisputable.

The eminent English laparotomist, Lawson Tait, has recently put forth the claim that feticide in these cases is unjustifiable and criminal. We can only answer to this highly moral objection that the majority of physicians, like the majority of the laity, will always continue in the future, as they have in the past, to consider the interests of the mother as paramount to those of the fetus.

There can be no question that a case of extra-uterine pregnancy in the early months ought to be terminated as early as discovered. If this can be done with safety to the mother we are justified in sacrificing the interests of the fetus. If this can be done without a mutilation of the mother we ought to prefer such a method to an operative procedure. And if such a method has been proved to be fairly free from risk, we certainly ought to resort to it. And herein lies the chief fact to be gleaned from this article, viz.: *Beyond one death in seventy-eight cases, no injury has ever been done the mother after the use of electricity.*

Moreover, where the electrical method has been abandoned for subsequent laparotomy—as in the cases of Coe (60) and Lewis (81)—the patients have done well and no harm has come from the previous treatment. Hence, although in the eyes of some it has appeared "ridiculous" and "cowardly" and the product of "ignorant obstinacy," the treatment continues to assert itself as a simple, innocent and harmless procedure which has its own proper sphere of usefulness.

What is this sphere? A case of extra-uterine pregnancy of less than ten or twelve weeks' standing—even if the diagnosis is somewhat doubtful—in which the symptoms of rupture are absent or very slight, is the proper one in which to employ this treatment. The method of Rockwell, in which the galvanic current is gradually increased to forty or fifty m. a. and then as gradually diminished, is probably the most rational. The same plan could be followed with the faradic current. Electro-puncture and aspiration should be unqualifiedly discountenanced. If it is possible to treat these cases having all the preparations ready for a laparotomy it will remove the last vestige of doubt. For the only fatal case which died of internal hemorrhage after the use of electricity required forty minutes from the beginning of the hemorrhage until the fatal issue. This was certainly a sufficient length of time—if preparations had been made—to open the abdomen and arrest the hemorrhage.

(To be continued.)

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T. W. E. DAVID, } Hon. Secs.
J. H. MAIDEN, }

The Society's House, Sydney, Dec. 13, 1893.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
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SINGLE COPIES . . . . . 10 CENTS.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.
F. J. REBMAN, LONDON AGENT, 11 Adam Street, STRAND, LONDON.
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SATURDAY, MARCH 24, 1894.

PROGRESS IN MEDICAL EDUCATION.

Judged by some recent jeremiads on the subject, progress in medical education in the United States must be something like the result obtained by that ingenious Irishman who reversed the connections of his gas meter and so brought the company in his debt at the end of the month. Like the Frenchman's crab the progress, apparently, walks backward.

As shown in a previous number of the JOURNAL the facts and figures set forth in the Report on Medical Education by the Illinois State Board of Health effectually disproves the assertions made as the occasion for these lamentations. Some of the statements are specifically dealt with in the Report. For example: In an address before the Harvard Alumni Association the speaker, after asserting that the chief difficulty in the way of a high standard of medical education in this country arises from the great number of medical schools—which is undoubtedly true—rather illogically and quite inaccurately said:

"Some years ago there were nearly three hundred [medical schools]. Now there are not far from one hundred and fifty and they are dying at about the rate of three a year.

One of the tables in the Report shows that the greatest number of regular medical schools in this country was 111 in 1890, and that for the past twelve years there has been an average annual increase of 2.2 regular medical schools, instead of deaths, "at about the rate of three a year."

In another recent contribution to the study of medical education in the United States, based on the Report of the U. S. Commissioner of Education, 1889–90, the following conclusions are drawn:

"1. The average course of study in the United States is still less than three years, i.e., eighteen months.

"2. The antiquated method of repetition [of lectures] still prevails in the majority of medical schools.

"3. The number of students of medicine is absolutely increasing, but (in relation to population) relatively diminishing. The homeopathic and eclectic schools are hardly holding their own.

"4. The education of the average medical student is superior to that of ten years ago; but the ratio of matriculates having degrees in science or arts is actually diminishing even in the richest, best located and only endowed medical schools."

If these conclusions were based on existing facts the outlook for medical education in this country would, certainly, be most discouraging. The facts and figures given in this most painstaking and exhaustive Report do not, however, warrant the conclusions—rather do they sustain a diametrically opposite set. Thus, instead of the general assertion that "the average course of study in the United States is still eighteen months," the Report shows that of the existing 136 medical schools in the United States in 1893, 115 (nearly 85 per cent.) require three or more years of study and of this number 70 (over 50 per cent.) require four or more full years of study.

Instead of repetitional lectures "in the majority of medical schools," only five out of the 136 existing schools follow this antiquated method, to-wit: Three regular schools and one eclectic in Georgia and one newly-organized homeopathic school in Illinois.

Whatever may have been the fact as to the number of students of medicine at some remote period, it has not been true for the last half dozen years or more that the number is "(in relation to population) relatively diminishing." At the sessions of 1885 the total attendance was 10,891—9,245 regular, 1,032 homeopathic, 614 eclectic. During the sessions of 1893, the attendance was 18,910—16,759 regular, 1,410 homeopathic, 741 eclectic. These figures show gains in eight years of 73.6 per cent. in the total attendance—81.2 per cent. for the regular students, 30.6 per cent. for the homeopathic, 20.6 per cent. for the eclectics—an average annual increase of 9.2 per cent. during the period. The average annual increase of population during the same period was less than 2.5 per cent. So that instead of there being a diminution of students of medicine in relation to population, there is a relative increase nearly four times greater than that of population. As a matter of practical interest to the profession it may be noted that there is an average increment of nearly 6,000 new home-made physicians every year, and that while the population increased 24.8 per cent. during the decade 1881—1890, the number of newly-graduated physicians increased over 50 per cent. during the same period; last year, 1893, the increase was a trifle over 8 per cent. As is quaintly observed in the Report: "There would still seem to be doctors enough to go 'round."

In the final conclusion, above cited, it is conceded that "the education of the average medical student is superior to that of ten years ago," even though he does not possess the outward and visible sign thereof in the form of a diploma of science or arts. But the value of this concession is lessened by the wail over the declining "ratio of matriculates having degrees

in science or arts even in the richest, best located and only endowed medical schools." The Dean of the Harvard Medical School, DR. BOWDITCH, may best answer this. Commenting, in a recent report, upon this diminution in the proportion of college-bred men who have entered the Harvard since 1884, he says:

"Among the influences that have contributed to this result it is fair to assume that the increasing demands of our medical colleges upon the time of the undergraduates and a growing conviction of the importance of beginning professional studies at an earlier age than that at which most students obtain the degree of A. B., have played an important part. This view derives confirmation from the fact that there is a large and apparently increasing number of students in every entering class who have received a certain amount of collegiate education, but who have left their colleges without taking a degree."

It may be justly said that, on the whole, medical education in the United States was never before in such a satisfactory condition; never before were classes so large nor so well prepared, nor instruction so thorough, nor teaching equipments and "plants" so complete. There is, it is true, still great room for improvement; but the progress of the past decade is the sufficient promise that such improvement will be effected in the near future. For the present we may, to adapt the language of PROFESSOR PEPPER in his address as President of the first Pan-American Medical Congress,[1] point with justifiable pride to the admirable and sweeping reforms which have already been instituted.

PROPOSED REDUCTION OF THE MEDICAL CORPS OF THE ARMY.

A standing committee of a legislative body is the guardian and defender of special interests against harmful or hasty action by the general body. Rarely does legislation adverse to those interests originate with such a committee; yet at the present time we have an illustration of its occurrence in the proposed cutting down of the Medical Department of the Army by the Military Committee of the House of Representatives in the Army appropriation bill as reported to the House: . . . . . "and no appointments shall be made to the office of assistant surgeon until the number of assistant surgeons shall be reduced below ninety, and thereafter the number of officers in that grade in the Medical Department shall be fixed at ninety." The present number is 125.

Of course the object of this is economy. The assumption is made that there are more army doctors than are needful; yet the Army with its attaches requiring medical attendance is as large now as when Congress in its wisdom fixed the present limits of the Medical Corps. The argument for reduction is that of late years the troops have been aggregated at larger posts so that now with only 120 posts we have as strong a medical force as when there were 200 different stations, each requiring medical attendance. But this argument overlooks the fact that in those days over a hundred civilian physicians were employed under contract,—Acting Assistant Surgeons they were called—at the smaller posts. As these were discontinued the contracts with civilian physicians were annulled, and at the present time no such outside assistance is employed. Money saved by reducing the Corps below its present limits would have to be spent for contract services. Would there be economy in that? If the object were merely to provide medical attendance to sick soldiers it is probable that it could be effected *in toto* by contract with private physicians more economically than by an organized medical staff. But the care of the sick is only a part of the duty of an army medical officer. He must discipline, train and educate the constantly changing *personnel* of the Hospital Corps to have an efficient medical service in the event of war; and his own training for such an event is of the first importance. It may be said that there is little likelihood of any need for this training; but if this is accepted as an argument it operates as much against our whole military force as against its Medical Department.

If the appropriation bill were to pass in its present form, no new appointments could be made until the Corps became reduced to its new limits. Instead of gradually filling up its ranks with bright young men, graduates of the Army Medical School, the progress of which during the past year has been the object of so much interest to the profession, there would be no appointments, no school, no education in the methods of war until all those qualified to teach by their experience in actual war have passed away. This would be a grievous squandering of dearly bought knowledge. In our issue of March 10 last we had great pleasure in reporting the exercises at the closing of the *first* session of the Army Medical School, and in the same issue we presented a view of the corresponding exercises at the *sixty-seventh* session of the British School at Netley, England. Our army medical friends are struggling to place their Corps on such a footing of efficiency as is held by the Medical Departments of European armies; and it does seem discouraging that just as the prospects were brightening under the able administration of SURGEON-GENERAL STERNBERG, and the cordial approval of the Secretary of War, there should appear a possible bar to all future progress. We are proud of our Army Medical Department as a body of able physicians, surgeons and sanitary officers, and have full confidence in the efficiency of its organization to care for the wounded that are so often uncared for in the first battles of an unexpected war. We feel confident that we give expression to the sense of the medical profession in urging Congress not only to sustain the Army Medical Department in its present status

[1] Journal Amer. Med. Ass'n, Sept. 9, 1893.

but to support the efforts of the SURGEON-GENERAL in raising the standard of medical education, inasmuch as these efforts conduce to the well being and efficiency of the Army, and have a reflected value through the medical profession on the whole of the American people.

WEAK HEART—CARDIAC INADEQUACY VERSUS CARDIAC ASTHENIA.

DR. J. M. DA COSTA, who has already contributed to the literature of cardiac disorder, two classical monographs on "Irritable Heart," and "On Strain and Over-action of the Heart," has further enriched the subject by a lecture upon "Weak Heart," given during the present month. The latter was delivered before the students of the Medical Department of the University of Pennsylvania, by solicitation of the Provost, DR. PEPPER, who, with others of the Faculty, were present in honor of the occasion.

The subject selected by the distinguished clinical teacher was the discussion of the symptom, "weak heart," especially considered from the standpoint of causation, diagnosis, prognosis, and treatment. The lecture reviewed the several forms of weak heart, the cases being grouped into three main divisions:

1. Those accompanied by organic change in the walls of the heart, the impairment of the heart's action being the consequence of such lesion; illustrations of this are to be found among elderly gouty subjects with rigid arteries and flabby tissues, who become breathless under slight effort, such as the exertion of going up a flight of stairs; such cases are to be ascribed to fatty degeneration of the cardiac muscle fibers. There is also the class of organic affections with weak heart accompanied by dropsy of which dilatation is the prominent type.

2. Those due to some toxic substance in the blood, either a toxin of unknown character as in influenza, typhoid fever or diphtheria, or some poison of recognized character, such as tobacco, alcohol and the gout poison.

3. Those in which the feeble action of the heart is to be ascribed to essential weakness of the cardiac muscle, and with this there may occur more or less myocarditis; and, finally, those which must be called "cardiac asthenia," which are of nervous origin. The last named group should receive special consideration since they do not obtain the recognition which they deserve, and they are not described in our usual works of reference. Two cases were cited of the latter character, in which depressing emotions suddenly and profoundly affected the heart's action; the patients collapsed suddenly, with failure of pulse, great weakness of the heart's action, vertigo or syncope upon lifting the head from a horizontal position, the extremities cold, the skin pale or bluish, and death apparently imminent from cardiac asthenia.

The differential diagnosis of these different groups of weak heart presents no special difficulties. In the fatty heart of gouty subjects the age, the presence of the usual signs of gout, the state of breathlessness brought on by slight exertion, sufficiently indicate the cause.

In the toxic group, the diagnosis is obtained from the clinical history rather than from the physical signs. The heart symptoms of dyspepsia probably are partly due to ptomaines in the blood from imperfect digestion of food in the stomach, and are partly reflex. They do not properly belong among cases of weak heart now under consideration being more of the type of irritable heart.

The main interest lies in the distinctions between the weak heart of essential muscular defect and the weak heart of nervous origin. With regard to the cause of the latter, the lecturer was inclined to locate the nerve lesion in the cardiac ganglia and connecting fibers rather than in the pneumogastric or in the medulla oblongata. In the diagnosis between the last named classes of weak heart, he had not found the sphygmograph of as great assistance as he had hoped; but he noted that in the nervous form, although the line of ascent was of considerable amplitude, yet it was more slanting than usual and might even show some irregularity or wave motion, and the line of descent also wavering, indicating low tension in the arteries. In the cases of muscle weakness, the line of ascent was more vertical, but did not attain the height that was observed in the first group; its descent was also wavering and irregular.

Dyspnea was a marked symptom of the muscle-weak hearts, and was not seen in the asthenic cases, in which vertigo and syncope were more common. The physical signs also were capable of affording some points of diagnosis. In the asthenic cases, the first sound of the heart was short and distinct and was followed by a valvular second sound, while in the other group the first sound was longer but lacking in volume, and was at times associated with a murmur, while the second sound was also indistinct. The pulse, in the former, may vary in force at different periods, but it does not as often intermit or become irregular as it does in the latter.

The prognosis varies in the different groups. In the fatty heart, or impaired heart associated with dropsy, the disease may be palliated, but in the end it is fatal. The toxic group, being dependent upon different causes which usually are removable generally recover; although deaths do occur, as happens not uncommonly in diphtheria. No one can explain why this fatal heart failure in diphtheria should occur; but there can be no question that asthenia is the immediate cause of death and not the heart clot which is only incidental to the weak action of the heart. An important question with regard to the

cases of essential muscular weakness and, as well of cardiac asthenia, is whether or not they may lead to organic disease. This may occasionally occur with the former. The weak heart sometimes becomes dilated, degeneration takes place in the muscular fibers, and valvular insufficiency also develops; a condition which the lecturer summed up in the very expressive term of "heart-wreck." In the asthenic cases, organic heart disease does not occur, but breast-pang, more or less severe, is one of its symptoms. Fatal results from "heart-failure" will happen occasionally, in spite of the disinclination of insurance companies and health boards to accept this diagnosis in a death certificate. These cases occur, it might be said, in both sexes, but more frequently in the male sex than among women. One complication of the asthenic cases to be especially noted is that after a few months, they may be attacked by diabetes mellitus, of purely nervous origin, and unfortunately fatal in character.

The treatment of these two forms of weak heart is in the main much the same. The best form of heart tonic, either from asthenia or weak muscle, by far, is strychnin, given in moderate cases one-fortieth grain. Arsenic is also of great service, especially in the cardiac asthenic cases, in combination with the preceding, and continued for weeks or months. Alcohol is often necessary, in decided doses, to overcome the tendency to fatal syncope and collapse. Along the same line is digitalis and also strophanthus, though with a large gap between. Adonidin and cactus grandiflora have not produced decidedly beneficial results. Rest in bed is a requisite of treatment in the nervous cases, since syncope and threatened collapse attend efforts to assume an upright posture. In cases of muscular weak heart, exercise is valuable. When the patient has begun to mend, a change of residence from the city to a sanitarium or watering place is generally advisable. With careful management, in the course of time to be measured by months or years, the patient may ultimately be restored to a perfectly normal condition and be as well as any one.

ORDEAL OF THE BIER.

Superstitions live long and die hard. A most singular reference to one is furnished in the case of State v. Wisdom, which was decided by the Supreme Court of Missouri, Jan. 31, 1894. This was an appeal from a conviction of murder. In the course of the examination of one of the witnesses, he was asked to tell what happened down at the morgue by the dead body, when another witness and the prisoner were there, prior to the inquest. This was objected to as immaterial, and the objection was overruled. The witness answered that they were told to put their hands on the murdered man; and that he and the other witness referred to did so, but the prisoner would not do it. An officer corroborated this statement. The prisoner objected to the latter's statement but assigned no reason. The action of the trial court in this regard was assigned as error. Who it was that told them to put their hands on the dead body did not appear.

The request to touch the body, the court says, was evidently prompted by the old superstition of the ordeal of the bier in Europe in the Middle Ages, which taught that the body of a murdered man would bleed freshly when touched by his murderer, and hence it was resorted to as a means of ascertaining the guilt or innocence of a person suspected of a murder.

This superstition has not been confined to one nation or people. It obtained among the Germans prior to the twelfth century, and is recorded in the "Nibelungenlied," a great epic poem of that century, in the incident in which the murdered Siegfried is laid on his bier, and Hagen is called on to prove his innocence by going to the corpse, but at his approach the dead chief's wounds bled afresh. That it dominated the English mind is attested by the passage of Matthew Paris that when Henry II. died at Chinon, in 1189, his son and successor came to view his body, and, as he drew near, immediately the blood flowed from the nostrils of the dead king, as if his spirit was so indignant at the approach of the one who caused his death that his blood thus protested to God. And SHAKESPEARE voices the same superstition in Richard III., (Act 1. Scene 2) thus:

> "O, gentlemen, see, see! Dear Henry's wounds
> Open their congealed mouths and bleed afresh."

And so does DR. WARREN, in "Diary of a Late Physician," (volume III, p. 327). That it was a prevalent belief in Africa and Australia, in another form, see Encyclopædia Brittanica, pp. 818, 819. This superstition has come to this country with the emigration from other lands and, although a creature of the imagination, it does to a considerable degree affect the opinions of a large class of our people.

It is true, it was not shown that the prisoner believed that touching this body would cause any evidence of guilt to appear, or that he entertained any fear of possible consequences; but it was simply a test proposed by some bystander, and it was offered as showing the manner in which the three suspects conducted themselves when it was proposed. While the prisoner had a perfect right to decline, either because of his instinctive repugnance to the unpleasant task, or because no one had a right to subject him to the test, and his refusal might not prejudice him, in the minds of a rational jury, on the other hand, a consciousness of guilt might have influenced him to refuse to undergo the proposed test, however unreasonable it was, and the court holds that it was one of the circumstances of the case that the jury could weigh. The jury could consider that, while it was a

superstitious test, still the prisoner might have been more or less affected by it, as many intelligent people are by equally baseless notions, as shown by their conduct and movements. If often happens that a case must be established by a number of facts, any one of which, by itself, would be of little weight, but all of which, taken together, would prove the issue.

THE VALUE OF A WOMAN'S HEALTH.

The Supreme Court of Minnesota holds, in the case of Galloway v. Chicago, Milwaukee & St. Paul Railway Company, decided Jan. 30, 1894, that where the evidence tends to show that prior to sustaining a personal injury a woman was healthy and active, but by such injury is rendered a helpless invalid an award of $10,000 damages is not so large as to warrant a reviewing court in saying that they are excessive. The immediate injury in this case, for which that amount of damages was awarded, was a wound on the knee, seemingly, in and of itself, a comparatively small one. But it was claimed, and the evidence tended to prove, that this caused a nervous shock, which resulted in the development of heart disease, and in traumatic neurosis. It will further be seen to have been one of the class of cases where about the only available evidence tending to prove the connection of cause and effect, aside from chronological coincidence, is that of medical experts.

CORRESPONDENCE.

LETTER FROM EUROPE.

Major Girard, Surgeon U. S. Army, to Professor Senn.

No. IV.

BERNE—PROFESSOR KOCHER—DR. QUERVAIN.

BERNE, SWITZERLAND.

Dear Doctor Senn:—I have made here several visits to the "Inselspital," and from what I have seen so far, I expect to witness as high a perfection in surgery as may be seen anywhere. I have heretofore in my letters avoided invidious comparisons and personalities, and will here also remain true to my plan. The buildings of the Hospital are not ten years old yet, consist of a number of detached structures—the pavilion style—and are heated by a central steam plant and ventilated partly by aspiration, partly by propulsion, I may revert to the description later on.

The clinic (surgical) is under the charge of Prof. Th. Kocher, whom I have heard you mention as the foremost surgeon of Europe. The surgical material is divided among three pavilions, two of them under Drs. Girard and Niehaus, noted surgeons, are not available for clinical instruction by the nature of the bequests of the founders. The material controlled by Prof. Kocher, however, appears rich, since during the last year 600 major operations were performed in the clinic. Some two years ago Prof. Kocher, who is an extreme believer in aseptic surgery, had a glass room constructed for his operations, which contains nothing but a copper operating table. The dressings are held in cylinders, which are sterilized from an adjoining room and open with air tight doors into the operating room. The amphitheater, where the clinical lectures are given, is not used for operations, to which usually only six students are admitted. This arrangement, beside facilitating asepticism, is claimed to be more profitable for the students as they can closely watch the operations to which they are admitted. Kocher operates with only one assistant, beside the Sister of Charity, who presides with extreme skill and foresight over instruments and ligatures. Another assistant gives the anesthetic. In connection with this, I may mention an ingenious contrivance, suitable particularly for struma operations, which are frequent here. It is a bow attached to the head of the table, from which a rubber veil passes to the chin of the patient, protecting the operator from the anesthetic and the wound from possible pollutions by the patient.

Kocher is very particular in his hemostasis and seizes even minute blood vessels with his forceps, of which often twenty or thirty surround the place operated on. The superficial vessels after completion of the operation are treated by torsion except in struma, the deeper and larger vessels ligated. In this manner his operations are nearly bloodless. He proceeds with great deliberation, but divides each layer of tissues with one stroke of the knife with great accuracy.

The first operation I saw him perform was for catarrhal appendicitis in a young woman. His manner of effecting removal of the appendix may be of interest. He first circumcises the peritoneum, strips it back and divides the appendix with the Paquelin knife between two ligatures and finally ligates the peritoneum over the stump. The mesentery of the appendix is meanwhile held with long-bladed forceps and then ligated and divided. The ends of the incision are then hooked up on sharp hooks, peritoneum, fascia and muscles are included in one continuous suture, and over this the skin.

The next operation was a cholecystectomy for gall stone. The gall bladder was found to contain a stone about three inches long, filling its whole lumen. It was attached by adhesions throughout, which were lifted up piece after piece with his director—one of the most useful instruments in surgery—and ligated prior to division. The gall bladder was excised *in toto*, in a manner similar to the appendix, blood vessels treated as usual, and same suture. The operation was practically bloodless and excited my greatest admiration.

The third operation was his modification of Alexander's operation for retroversion and prolapsus. The right round ligament was readily found, drawn out about five inches (which were cut off), and sewed with four silk stitches into the fascia of the m. obliq. externus and the canal closed with two or three more sutures. Blood vessels and skin sutures same as usual. On the left side it was found that the patient had sustained at some time before at another hospital an operation for radical cure of hernia and the ligament had been cut away, as it could not be found. Vaginal examination showed that the uterus was drawn upward and to the right.

The anesthesia in all these cases commenced with chloroform and after insensibility was produced, it was continued and kept up with ether. This method seems very satisfactory and no annoyance was caused by the anesthesia.

Prof. Kocher appears to be overwhelmed with private operations and consequently leaves considerable operating work to be done by his first assistant, Dr. F. de Quervain, who is favorably known to the profession by his monograph on "Cachexia Thyreopriva." He is an expert operator and is considered one of Kocher's ablest disciples. Yesterday he made three radical operations for hernia, which unfortunately I missed. This morning he opened a mastoid abscess with a thermo-cautery knife and subsequently operated on a compound double fracture of tibia and fibula.

After carefully disinfecting the surface and applying the Esmarch tourniquet, he exposed the fractured tibia, made resection of the fractured ends and by sawing out a step from each end brought them in apposition. The comminuted parts of the fibula were removed with the forceps. Wiring of the ends of the tibia made shortly after the accident,—caving in of a bank of earth—which had led to the fracture had failed, the wires cutting through the bone. The limb was placed in a plaster-of-paris dressing with the necessary fenestræ, strengthened with strips of veneering, a procedure novel to me.

A resection of the knee joint, which had been made by him and was healing by first intention was then placed in a plaster splint. I remarked that he deviated from the practice of the German surgeons—and I believe also yours—in making the resection so as to have the limb perfectly straight. I was informed that the results of partly flexed position had not been found satisfactory as the flexion gradually became more pronounced and the limb useless.

This afternoon Prof. Kocher made his modification of Alberti's operation of gastrostomy. He makes a vertical incision about four inches long in the usual place, to about two inches above and to the left of the umbilicus. With his usual care he proceeded with the hemostasis and division of the several layers and drew out part of the stomach. With artery needle he ligated the vessels on both sides where the sutures were to be inserted. He then closed the abdominal opening to about two inches in the manner described heretofore, and after having drawn the stomach out about four inches, stitched it to fascia and peritoneum with continued suture. He then prepared a channel for the part of the stomach drawn out, by separating bluntly the skin from the ribs and made an incision at about the sternal end of the sixth rib, into which he *forcibly* drew the pouch and with four interrupted sutures sewed it to the margin of the incision. This method is said to make a perfect valve, requiring no pad and not liable to eventual change, as in Alberti's operation.

The next operation was excision of a carcinomatous mamma. After carefully outlining the shape of the gland and marking the margins with a nick of the knife, he made a circular incision and dissected gland and fascia from the pectoralis muscle. The incision was carried into the axillary cavity and every vestige of lymphatic glands, (which appeared perfectly sound) dissected in the most painstaking manner from the axillary blood vessels. The skin was then united with continued suture and a small remaining defect covered with Thiersch graft.

BERNE, February 27.

To-day's surgical clinic was about as exquisite to my taste as one of Thomas' concerts would be to a music lover. First two women were presented to the class, both with typhlitic abscess. The "consulting staff" were well quizzed by Prof. Kocher and acquitted themselves very creditably. The attendance in the clinic was the best I have seen so far anywhere, except at Rush. The first woman exhibited had a fluctuating tumor in the right hypogastric region. No local disturbance discoverable in the anamnesis, except some diarrhea. The tumor had gradually grown during four weeks and discoloration of the skin was pronounced. A careful analysis, positive and exclusive, of all possibilities was made and probable perforative appendicitis, possible perforation of cecum or colon diagnosed. With the aspirator syringe a small quantity of ill smelling pus was removed, which confirmed the diagnosis. The crucial test was established by microscopic examination, which revealed a great cavity of microörganisms, among them staphylococcus, streptococcus, diplococcus, bacillus coli and even the comma bacillus.

The other one was still more remarkable, for the tumor was on the *left* side of the umbilicus.

Both cases received hypodermic solution of cocain and the abscesses were incised with the thermo-cautery (to prevent infection) with escape of enormous quantities of fecal pus. The plan of treatment is irrigation several times daily with one per cent. salicylic acid and an antiseptic dressing until granulation is well advanced, then radical operation. In this manner, infection of the wound is prevented.

These operations were made in the amphitheater, since no danger of infection existed for these infected abscesses and they would have lamentably affected the aseptic condition of the operating room, to which Prof. Kocher and the chosen few adjourned, for the second, the operative part of the program, four capital operations.

1. *Excision of a Struma.* Horizontal incision, careful hemostasis, double ligature of the capsular tissues and division between the ligatures. The operation was almost bloodless and performed in an incredibly short time. I have heretofore omitted stating, that Prof. Kocher uses for buried sutures almost exclusively silk; this is due to occasional infections from the use of catgut, owing to careless preparation of the makers.

2. *Ovariotomy* of a single tumor without adhesions. After division of the tissues in the linea alba, evacuation of the tumor with Spencer Wells trocar (probably two gallons of fluid), upon which the tumor was turned out and the pedicle ligated with silk in two parts and returned to the abdominal cavity. Peritoneum and fascia were then united with a continuous suture and then the skin likewise. No drainage.

3. *Radical Operation of Inguinal Hernia.* Oblique incision. The sac was forcibly drawn out of the ring, (about five inches) then passed through an incision about one and one-half inches above in the transverse fascia, to which it was stitched before and behind with wire sutures. Then it was laid down in the inguinal canal and connected with three more wire sutures and the remaining end cut off. A superficial continued suture completed the operation.

4. *Excision of Carcinomatous Mamma* in a male, age 50. The nipple being in an ulcerated condition was as a preliminary step thoroughly cauterized with the Paquelin. The remainder of the operation was similar to the one heretofore described.

I am about at the end of my description of the Berne clinic, as the "semester" is nearly over. A struma of the size of a large orange was excised from a boy of 14. The reason leading to the operation was that from a tracheotomy performed in childhood, the cricoid cartilage had not recovered the normal strength and even this small goitre caused dyspnea by compression of the trachea. On excision of the tumor the breathing became free, but the slightest pressure on the cartilage led to suffocative attacks.

The next case of struma operated on was a cystic tumor, apparently without adhesions and only cocain hypodermically was used as an anesthetic. Since, however, additional cysts had formed, penetrating deeply into the intermuscular spaces, the operation was considerably prolonged and a severe tax on the fortitude of the patient.

The next operation was an "Alexander" for prolapsus with cysto- and rectocele. It was performed quickly and with apparent ease, at once correcting the faulty position of the uterus.

A tubercular osteitis of the tarsus led to amputation. First the cuboid bone being diseased was re-articulated, then the head of the astragalus, then a cuneiform bone, and finally pus exuding from the ankle joint; conservative treatment had to be abandoned, and the choice lay between a Pirogoff and amputation. The skin was too much infil-

trated for the former, however, and the latter, for which the consent of the patient had been obtained previous to etherization, was performed with a lateral flap.

This morning on my arrival at the clinic I met Prof. Kocher leaving. He informed me that he had to go to Lucerne to make a severe operation and that Dr. de Quervain would make the operations this morning. (I learned later that the operation spoken of by the Professor was a removal of the Gasserian ganglion—for neuralgia of the trifacial—by resection and turning back of the zygoma.) Dr. de Quervain made four operations, a double radical operation for hernia, two single ones and exsection of the skull for tubercular disease. In the double hernia the bowel had not passed much beyond the external ring, causing some trouble in finding the sac. Dr. Quervain remarked on the fearlessness of the people in submitting to operations, even for slight defects. The second case was a very large hernia of many years' standing, with a greatly thickened sac. It was operated on in the usual manner expeditiously. The third case was a return of hernia after operation two years before. It was found that the silk sutures, which had closed the canal had cut through the ligament of Poupart. All but one suture were intact.

The exsection of the skull was made with a semi-circular incision. After scraping back of the periosteum three perforations about two inches apart and two erasions presented themselves. With gouge and hammer one of the perforations was enlarged and a piece of bone about two by four inches removed with the rougeur, showing the dura mater covered with unhealthy fibrinous deposit. This was scraped off with the spoon, the brain covered with iodoform gauze, and the flap, after excision of the diseased parts, sutured over the opening. No bone grafts were used.

I have given the surgical clinic of Berne a rather large share of my letters for two reasons: One, because I prolonged my stay here, and the other because everything in the operating line was so exact and fascinating that I was greatly attracted.

I may yet send a letter from Zurich, but will probably suspend my epistolary activity until I reach Rome, when I propose sending you an account of the work of the Surgical Section, with which I intend connecting myself.

My letters must certainly have the stamp of impromptu writing, as most of them are written at night, by the light of a tallow candle, after fatiguing traveling and sight seeing, and I hope that shortcomings will be dealt with leniently. Sincerely yours, A. C. GIRARD.

Prevention of Yellow Fever.

AUGUSTA, GA., Feb. 16, 1894.

DR. J. MCFADDEN GASTON, Atlanta, Ga.:

Dear Doctor:—I have just read your "Open Letter upon the Prevention of Yellow Fever by Inoculation" in the January number of the *Southern Medical Record*, reprinted from the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, of January 6.

If by this writing I can "hold up Moses' hand" I shall feel repaid, however unnecessary that aid may appear to one, who, in the strength of his resources, proclaims his ability and purpose to present "before the medical profession at an early day, facts in his possession confirmatory of *all* that has been alleged in favor of the results of inoculation against yellow fever, as practiced by Domingos Friere in Brazil."

The subject is one of overwhelming importance as well as public interest. That your presentation of the data at hand will be acceptable, I need not assure you; the profession will await it with expectant interest, increased if not prompted, by the hope that whatever prejudice to the cause of the prophylaxis of yellow fever by this means has resulted from the action of the Commission, may be speedily removed, and at least the hopeful attention of the scientific world be again accorded to the investigator.

I can plead an early interest in this subject, as the author of a petition signed by the Georgia Medical Society of Savannah, the Board of Health and the Academy of Medicine of this city, to the Congress of the United States in 1884, to offer a reward, "open to the world, for the discovery of the true cause or germ of yellow fever, or any certain means of effecting its prevention, destruction, or harmless modification." This was done with a view to "stimulate inquiry in this direction," which seemed in the then state of knowledge the only one of promise as to the control of this epidemic disease. Dr. Friere's appearance upon the stage of action about that time was to me, as it doubtless was to others, especially interesting and timely.

Dr. Friere will be fortunate if he encounters opposition in only *official* form. The path of independent research and discovery in such matters is a thorny one indeed, and he who pursues it needs alike the patience of Job and the "courage of his convictions." Witness Jenner the great exemplar, of whom it is said: "During six years no member of the profession ever received more anathemas or scurrilous abuse. He was attacked by the leading physicians and surgeons of Great Britain, and persecution and ridicule so followed him, that placards with caricatures of Jenner were posted throughout the streets of London and the principal towns of Great Britain; Jenner kept steadily at work and repeated his experiments, until he became fully convinced that by vaccination perfect protection could be obtained against smallpox."

Science has never yet discharged the debt of obligation it justly owes to tradition and *empirical popular* observation by the discovery of vaccination through that medium. "In 1771, a Holstein *schoolmaster* vaccinated three pupils, and in 1774, an English *farmer* vaccinated his wife because of his belief in the power of bovine virus as seen in his dairy maids." It was twenty-five years later (1796) that Jenner made his first vaccination on man. This obligation can never be discharged, as the occasion that created it led to the first experimental demonstration of the now more fully established theory of the "attenuation of viruses," the vista through which hope sees in the distant future the revelation of a power over contagious epidemic diseases unauthorized by all other human means.

You foreshadow objections to Dr. Sternberg's "mode of conducting the investigation" that led to his unfavorable report. Now without meaning to criticise this distinguished officer, it can be said that commissions of inquiry into matters of this kind, especially when prefaced by a certain degree of incredulity on the part of the individuals composing them as to the observer whose work is to be examined, or incredibility as to the subject under investigation, can not, or ought not to, be taken as final. As evidence of this, I need only refer to that admirable "Report on the Cholera in Europe and India," made in 1890 by Dr. E. O. Shakspeare, A.M., M.D., Ph.D. of Philadelphia, who was appointed by the U. S. Government, Special Commissioner for that purpose. That report, commendable alike for its impartiality, ability and fidelity to the trust imposed by the Government which he represented, is a model of its kind.

Among other matters of investigation incident to this mission was that of the anti-choleraic inoculations practiced by Dr. Ferran of Spain. Whether of value or not, they had attracted the attention of Europe and the scientific world. Commissions were sent by different countries to look into the merits of this so-called discovery. Among them, one from France, headed by Brouardel. Appointed by the

Minister of Commerce, his Commission also bore a letter to Dr. Ferran from the immortal Pasteur, before whom both science and commerce in their approaches may be fitly represented in a kneeling, if not worshiping, attitude, with upturned palms ready to receive the gifts of God transmitted through this medium.

Reading the report of this Commission, one is lamentably impressed with the shortcomings of human nature. Because Dr. Ferran saw proper to withhold "his mode of attenuation of the cholera virus," although offering every facility for the examination of the "vaccinal liquid" in his laboratory, the Commission made a report disparaging to his preparation and outfit for the work; intimated a want of "honesty of the man," and while admitting that the "inoculations upon man may appear harmless," yet represented him as the subject of an imprudent "infatuation" which committed him to its premature trial on man; in extenuation of their position pleading the example of Jenner who "hesitated nine years before daring to inoculate James Phipps, May 14, 1796." If this Commission had simply reported their inability to pursue the objects of their inquiry on account of the refusal of Dr. Ferran to disclose or subject to examination his mode of preparation of the virus, its duty would have been discharged; but in reflecting upon Dr. Ferran in the above manner, it sacrificed its own prestige and influence to bitter prejudice or disappointment.

The U. S. Commissioner says: "After having read so much in the current literature of the day about the ignorance of Dr. Ferran of the modern methods of research among bacteria, and of his inability to make decent microscopic preparations, and of his absolute ignorance of the method of staining, I confess that it was with some surprise that I witnessed the facility with which he performed all these operations—a facility which indicated the habitual practice of no mean skill in the performance of these somewhat delicate operations; and my astonishment when for the first time I examined with the Hartnack microscope one of the coverglass preparations which I had seen him make. Honesty and regard for fair dealing require me to say that if there are more beautifully stained microscopic preparations of bacteria, especially of the comma-bacillus of Koch, and of the Finkler and Prior bacillus, in Europe, I have never seen them." "I found him to be a quiet, reserved, courteous, intelligent and generally well-informed physician. The impression which I formed of his theoretical knowledge of bacteria and of the modern methods of research in the field of natural history, have compared very favorably with those of most of the leading bacteriologists with whom I have come in contact." (Page 714.)

Moreover, as you propose to furnish data confirmatory of the discredited results of Dr. Friere's yellow fever inoculations, it may interest you if I quote in this connection Dr. Shakspeare's statement of the results of the anti-choleraic inoculations in Spain.

After citing statistics he adds: "It appears, therefore, that among the population of villages wherein anti-choleraic inoculations had been more or less extensively performed, the liability of the inoculated to attacks of cholera was 6.06 times less than that of the non-inoculated; whilst the liability of the inoculated to death by cholera was 9.87 times less than that of the non-inoculated. (Page 715.)

Between Drs. Ferran and Friere there exists a close analogy in their respective spheres of observation. Hitherto unknown members of the profession, and alike bold in the practical application of the results of their researches, they first fell heir to incredulity, if not prejudice in the minds of the profession, and invited a burden of proof positive as to the value of their observations which, to say the least, it is extremely difficult to furnish under present circumstances. Their tasks embraced not merely the finding of a missing link in the development of the bacillus anthracis, or the isolation of the germ of cholera or tuberculosis, like Koch, but much more, the immediate practical application and use of a virus for the prevention and modification of the two remaining unmitigated scourges of mankind—yellow fever and cholera. The discovery of the bacillus-tuberculosis and the comma-bacillus has done little or nothing for the treatment of the diseases of which they are the respective causes; while inoculations against cholera and yellow fever become from their very nature and objects the full equivalent of the highest therapeutic results. A stronger proof, more difficult to furnish than the demonstration of a microörganism, is necessary with the latter, and even if brought to naught in the end, may not be without useful lessons to future investigators. It will doubtless prove an acceptable duty to you to show the full value and usefulness of Dr. Friere's labors and researches.

Yours truly, W. H. DOUGHTY.

The Advertising Question.

PITTSBURG, March 10, 1894.

To the Editor:—I observe, sir, that but one side of the advertising case has been presented by the Hebrew children of Philadelphia and Pittsburg. I always bear in mind, sir, the old advice to beware of the Greeks bearing gifts, "*Timeo Danaos et dona ferentis.*" The spasms of virtue which are bringing Solomon of Philadelphia, and Isaac of Pittsburg, to the fore, may be in the nature of friendliness to some of the rival works. This is perhaps creditable, but it ought to be considered with their remarks. It is somewhat singular that you do not see these people attacking "Europhen," "Trional," "Losophan," "Piperazin," "Antipyrin," "Antifebrin," or "Sulfonal." The difference between these and American secretly prepared pharmacy products is that one is from abroad and probably of Hebrew manufacture, while the others are indigenous. I must say, Mr. Editor, that I occasionally use "Phenacetin," and also "Listerine," and I intend to continue their use until the Pharmacopœia supplies me with something better to use in their place. I have never prescribed any of the others of the category, but when convinced of their utility I may do so. There is a great deal of humbug and tomfoolery in the row that has been raised. These American pharmacists are not publishing to the people a quack remedy. They offer their products to the medical profession alone, and ask to be tried by professional standards. There is a very wide difference between the "patent" medicine man who issues an almanac to everybody, and reputable pharmacists who put "Europhen" and "Listerin" on the market. Not only that, but the ingredients are not secret; they are known. The process of manufacture, like that of handicraft, is individual. Everybody not a veritable chump knows that the Code of Ethics, written years ago, when individual pharmacal processes were unknown, had reference only to patent medicines—the variety that supplies the family almanac and recommends the same secret compound for a variety of diseases as a specific. This patent medicine specific was the object aimed at by the paragraph in the Code, as the modern "Sennine" and compounds of its class were unknown when the Code was framed.

The resolution claimed as governing was introduced without notice and passed without comment or debate; not a half-dozen members paid any attention to it.

Even the shriekers profess to desire that our JOURNAL shall be a creditable one in its reading pages, and that it shall show in its news columns and general make-up no inferiority. It costs money to make a JOURNAL like ours.

How can it be maintained on an equal footing with other journals if one-third of its income be suddenly cut off? Why should our JOURNAL be handicapped with any such restrictions as Dr. Cohen proposes? The *British Medical Journal*, the highest type of the most ethical medical body in the world, contains the advertisement of "Cactina Pillets," and others of its class. There is not one of the American medical weeklies that does not carry the advertisements in question. Our members demand of the Trustees a JOURNAL equal to any. It simply can not be made equal if the line on *American* pharmacal products is drawn where the shriekers want it. These views, Mr. Editor, may not conform to the views of rabid fanatical sentiment, but they are those of common sense. There is no sense in placing the American pharmacal compounds of the class named by the Hebraics, among the quack nostrums. It is so manifestly unfair, that the fact only needs to be stated, to be appreciated. However, we may well ask, who will draw the line, and where will he draw it? Will it be drawn only against home products, or will those of foreign countries fall equally under the ban, whether from the New Jerusalem or the Old?

MEDICUS.

[This discussion, in the opinion of the editor, is profitless. Let the matter be brought to an issue on the floor of the ASSOCIATION, and there end.—EDITOR.]

Why "Moonshine Pills" Flourish?

TECUMSEH, MICH., March 17, 1894.

To the Editor:—In your last week's issue of the JOURNAL, ten or more pages are given in exposing the vagaries of homeopathy, in which the author of the paper explains how near he got in the slum.

It is my impression that if the medical schools of our country will raise the standard of medical education equal to that of European countries, we will be cursed with less quacks, homeopaths, and other sects.

They will not flourish any more than they do in Austria and Germany. Very truly yours,

J. F. JENKINS, M.D.

ASSOCIATION NEWS.

The Association Train will leave Chicago Monday, May 28, via Santa Fe R. R., Rio Grande Western, and Southern Pacific, for San Francisco via Denver, Colorado Springs, Leadville, Manitou, Glenwood Springs, Salt Lake, Ogden, Truckee and Sacramento. Returning, after the meeting, the train will pass through Sacramento and Northern California to Portland, thence east by way of the Northern Pacific R. R. to St. Paul. C. M. & St.P. R. St. Paul to Chicago. A stop over at Yellowstone National Park for those who desire it has been arranged, and it has been understood that at several places on the journey there will be short stops. President Hibberd's party in a special car join the train at Chicago, and the St. Louis party are expected to join at Kansas City. From all points east and south, concentrating on this train should be effected at Chicago and St. Louis. For all information relating to this train, fares, etc., address G. M. Connell, 212 Clark st., Chicago, or any agent of Santa Fe line in other cities. Rates promised are the lowest excursion rates at time of departure.

This is the only route on which arrangements have been perfected by the Trustees.

Points of Interest.—While San Francisco is a comparatively new city it is not lacking in places of interest to the visitor. About a half mile to the northward of the city limits, nestling in a little valley and surrounded by evergreen trees is the Presidio, the U. S. Army station. A short distance beyond is old Fort Point upon the waters' very edge—the waters of the bay dashing upon its cement abutments are broken into spray and lost upon its walls.

McDowell Avenue leads from near the Fort around the top of the cliffs overlooking the Golden Gate, and the broad expanse of the Pacific Ocean.

Vessels of all nations and descriptions can be seen in the offing or quietly gliding through the waters of the Gate.

The Cliff House—a famous resort—is situated upon a promontory directly overlooking the ocean. In the distance on a clear day the Farallone Islands—twenty-five miles away—are seen rising abruptly from the water, while less than one hundred yards from where one stands, the "Seal Rocks" jut up from the waves and the loud barking of the seals and sea lions upon them tell why they are so named.

Sutro Heights are just above the Cliff House. Here nature and art have so blended their works that the visitor is truly astonished and delighted with what he sees. The Committee of Arrangements are planning an entertainment at this place for the wives and daughters of visiting members to the ASSOCIATION. All San Francisco is justly proud of Golden Gate Park. What was once dreary sand dunes, has been transformed into a very garden. Flowers bloom throughout the year, and the grasses are always green.

Broad avenues wind in and out past the conservatory, the deer paddock, around the base of Strawberry Hill and on to the ocean beach.

The California Mid-winter Fair is being held in the Park at the base of Strawberry Hill and occupies a space many acres in extent.

This Fair has an individuality peculiarly its own, and offers much of interest to every visitor.

San Francisco, March 14, 1894.

Section of Neurology and Medical Jurisprudence.—PARTIAL PRELIMINARY PROGRAM.—The following papers have been promised for presentation in this Section:

1. Chairman's Address—"Medical Expert Testimony and the Common Law," James G. Kiernan, Chicago, Ill.
2. "Medico-Legal Aspects of the Cronin Case." Judge R. M. Wing, (Counsel for the Defense) Chicago, Ill.
3. "Medico-Legal Superstitions Concerning Criminal Inebriates," T. D. Crothers, Hartford, Conn.
4. "A Case which Illustrates the Medico-Legal Relations of Bacteriology," A. Walter Suiter, Herkimer, N. Y.
5. "Degeneracy from an Oral and Dental Standpoint in Regicides and in Aristocracy," Eugene S. Talbot, Chicago, Ill.
6. Paper—Title to be announced later, H. N. Moyer, Chicago, Ill.
7. "Recent Discoveries in the Minute Anatomy of the Nervous System and their Bearings on Practical Neurology," Chas. K. Mills, Philadelphia, Pa.
8. "Auto-infection in the Production of Diseases of the Nervous System and some Suggestions as to Treatment," D. R. Brower, Chicago, Ill.
9. "Is Locomotor Ataxia a Nervous Disease?" L. Harrison Mettler, Chicago, Ill.
10. "Some Observations and Remarks on Insanity of Adolescence," Frank P. Norbury, Jacksonville, Ill.
11. "Sexual Animus; Its Relation to Health and Disease," Charles Everett Warren, Boston, Mass.
12. "Laryngismus Stridulous," Rosa Engelmann, Chicago, Ill.

More papers will be announced later.

FRANK P. NORBURY, Secretary,
Jacksonville, Ill.

Section on Materia Medica and Pharmacy.—Members of the ASSOCIATION and delegates are invited to prepare papers on appropriate topics to be discussed before this Section. It is especially requested that the titles of papers should be sent to the Chairman or Secretary at as early a date as possible in order that the program may be arranged. A number of pharmaceutical papers have already been promised, and the titles of others should be sent in at once either to the Chairman Dr. Frank Woodbury, Philadelphia, or to Dr. George F. Hanson, 761 Valencia Street, San Francisco, who has kindly consented to serve as Secretary *pro tem* in place of Dr. Stewart who will be unable to attend the meeting.

SOCIETY NEWS.

The Ohio State Medical Society will hold its forty-ninth annual session at Zanesville, May 16, 17 and 18. President, N. P. Dandridge, Cincinnati; Vice-Presidents, F. C. Larimore, Mt. Vernon; Wm. Caldwell, Fremont; W. T. Corlett, Cleveland; L. L. McCurdy, Dennison; Secretary, Thomas Hubbard, Toledo; Assistant Secretary, Chas. Graefe, Sandusky; Treasurer, James A. Duncan, Toledo.

Medical Association of Georgia.—The forty-fifth annual session of the Medical Association of Georgia will meet in Atlanta, Ga., on April 18, 19, 20. The officers are: President, W. H. Elliott, M.D. of Savannah, Ga.; Vice-Presidents, G. T. Miller, M.D. of Americus, H. McHatton, M.D. of Macon; Treasurer, E. C. Goodrich, M.D. of Augusta; Secretary, Dan H. Howell, M.D. of Atlanta, Ga.

DAN H. HOWELL, M.D., Sec'y.

The Association of Military Surgeons of the United States.—The fourth annual meeting of the Association of Military Surgeons of the United States, will be held in this city May 1, 2 and 3, 1894. A brilliant and able literary program will be presented. The evenings will be given up to social entertainments. Transportation will be satisfactorily reduced on all railroads to and from this meeting, and all the hotels in the city will give greatly reduced rates. The Ebbitt House will be the social headquarters. A large attendance is anticipated, and a cordial invitation is extended to all to be present.

GEORGE HENDERSON,
Chairman Committee of Arrangements.

Washington, D. C., March 1, 1894.

Cincinnati, Ohio, Academy of Medicine.—The annual election for officers for the Academy of Medicine was held March 5. Dr. Southgate, a graduate of the Woman's Medical College, was elected Corresponding Secretary.

The other officers elected were: E. G. Zinke, President; Joseph Eichberg, First Vice-President: David De Beck, Recording Secretary; Dr. George E. Jones, Treasurer; Miss Glaezer, Librarian; Dr. John A. Murphy, W. P. Dandridge and James T. Whittaker, Trustees.

The Academy is in a prosperous condition. The report of the officers, the valedictory and inaugural addresses were given on the 12th, and the banquet was held on the 15th at the Gibson House.

The St. Louis Medical Society held a meeting March 3. Dr. Outten presided.

Dr. Alleyne was reëlected Treasurer in place of Dr. Hunt, resigned. Drs. P. C. Witherspoon, Philip Hoffmann, J. L. S. Jennings, Louis Crusius, Lloyd Simpson, Howard Carter and Alex P. Jordan were elected members of the Society.

The report of the committee appointed to examine the accounts of Dr. Hunt, the retiring Treasurer, was read and adopted. It shows the Society to be in good financial condition, there being a balance on hand of $597.25.

Denver Medical Alumni.—The regular monthly banquet of the Denver Medical Alumni Association was held March 3. After the regular program the usual monthly banquet was held. Dr. J. N. Vroom acted as toastmaster. Toasts were responded to as follows:

"Our Oldest Graduate," Dr. P. V. Carlin; "Bacteria and Beards," Dr. I. B. Perkins; "Physicians without Beards," Dr. C. H. Manly; "Hospital Work," Dr. G. H. Stover; "City Suicides," Dr. Carl Johnson; "Bald-headed Doctors," Dr. M. A. Walker; "Denver Alumni Association." Dr. J. T. Davison; "Populist Party," Dr. Coleman; "Antisepsis," Dr. E. A. Sheets; "Our West Side Practitioners," Dr. David Thompson; "The Church and Medicine," Dr. E. H. Allison.

Shelby County (Ind.) Medical Society will hold its annual meeting at Blessing's Opera House, April 9, 1894. Preliminary program: Diphtheria, Dr. E. S. Elder, Indianapolis. Discussion: Dr. I. N. Love, St. Louis.

Exhibition of Pus Tubes, recently removed, Dr. W. H. Wathens, Louisville, Ky. Discussion: Dr. T. A. Reamy, Cincinnati.

The Diagnosis and Treatment of Floating Kidney, Dr. R. Harvey Reed, Columbus, Ohio. Discussion: W. N. Wishard, Indianapolis.

Nasal Reflexes, Dr. J. A. Thompson, Cincinnati. Discussion: Dr. H. W. Loeb, St. Louis; Dr. L. C. Cline, Indianapolis.

The County Medical Society, Dr. J. C. Culbertson, Cincinnati. Discussion.

The Treatment of Gun-shot Wounds of Chest, Dr. A. G. Bernays, St. Louis. Discussion: Dr. P. S. Conner, Cincinnati.

Is the Usual Treatment of Postpartum Hemorrhage Correct? Dr. W. G. McFadden, Shelbyville, Ind.

Papers have also been promised by Dr. R. B. Hall, Cincinnati, Dr. Max Thorner, Cincinnati; Dr. Jos. Ransohoff, Cincinnati; Dr. E. F. Wells, Chicago; Dr. J. O. Stillson, Indianapolis, the titles of which have not yet been received.

A banquet will be tendered the visitors at Blessing's Opera House in the evening.

The following have accepted invitations to respond to toasts: Dr. I. N. Love, St. Louis; Dr. J. McLean Moulder, Kokomo, Ind.; Dr. C. A. L. Reed, Cincinnati; Dr. T. A. Reamy, Cincinnati; Dr. E. S. Elder, Indianapolis; Dr. J. M. Mathews, Louisville, Ky.; Dr. R. Harvey Reed, Columbus, Ohio; Dr. L. S. McMurtry, Louisville, Ky.; Hon. W. S. Ray, Shelbyville; Hon. L. J. Hackney, Shelbyville; Dr. D. S. Reynolds, Louisville, Ky.; Dr. E. F. Walker, Evansville, Ind.

American Surgical Association.—Session of 1894. Special subjects for discussion are as follows:

"The Surgical Treatment of Empyema," by John Ashhurst, Jr., M.D.

The discussion of the paper will be opened by Drs. N. P. Dandridge, C. B. Nancrede, T. F. Prewitt, and D. F. Willard.

"Methods of Teaching Surgery," by J. S. Billings, M.D.

The discussion of the paper will be opened by Drs. J. C. Warren, N. Senn, W. W. Keen, E. M. Moore, W. T. Briggs, and Hunter McGuire. It is desired that the discussion of this paper should be participated in by the Fellows generally.

"The Surgery of the Kidney," by L. M. Tiffany, M.D.

The discussion of the paper will be opened by Drs. M. H. Richardson, H. H. Mudd, C. H. Mastin, and Ford Thompson.

"Methods of Controlling Hemorrhage in Amputation at the Shoulder," as illustrated by three cases of amputation at the shoulder-joint and of the entire upper extremity, by W. W. Keen, M.D.

The discussion of the paper will be opened by Drs. Roswell Park, C. B. Porter, and J. William White.

Paper by Hunter McGuire, M.D; Paper by Joseph Ransohoff, M.D.

Fellows who desire to present volunteer papers are requested to send the titles of the papers to the address of the Business Committee, 1429 Walnut Street, Philadelphia, not later than April 18, 1894.

The Sessions of the Association will be held in the Lecture Room of the Medical Department of the Columbia College, 1325 H Street, N. W., Washington, D. C., on May 29, 30, 31, and June 1, from 10 A.M. to 1 P.M.

The sessions of the Congress will be held in Metzerrott's Hall, corner of Twelfth and F. Streets, N. W., in the afternoon from 2 to 5 o'clock.

The office of registration of the Congress will be at the Arlington Hotel. Registration of individual members of the constituent associations of the Congress is necessary to make them members of the Congress.

Dinner to the guests of the Congress at the Arlington Hotel, Wednesday, May 30, 7 P.M.

Reception by the President of the Congress, Thursday evening, May 31.

J. R. WEIST, M.D., Secretary.

Illinois State Medical Society.—The forty-fourth annual meeting of the Illinois State Medical Society will be held at Decatur May 15, 16 and 17, 1894. The meeting will be called to order Tuesday morning, at 10 o'clock.

OFFICERS.

President, Otho B. Will, Peoria; First Vice-President

Daniel R. Brower, Chicago; Second Vice-President, Abby Fox Rooney, Quincy; Permanent Secretary, John B. Hamilton, Chicago; Assistant Secretary, E. J. Brown, Decatur; Treasurer, George N. Kreider, Springfield.

JUDICIAL COUNCIL.

Charles C. Hunt, Dixon; Richard Dewey, Chicago; Isaac N. Danforth, Chicago; John P. Matthews, Carlinville; Francis P. Haller, Vandalia; Edgar P. Cook, Mendota; E. Ingals, Chicago; C. B. Johnson, Champaign; W. J. Chenoweth, Decatur.

SECTIONS.

Practice of Medicine, Medical Specialties, Materia Medica, Therapeutics.—Chairman, T. J. Pitner, Jacksonville; Secretary, H. McKennan, Paris; Address, Prof. Victor C. Vaughan, University of Michigan.

Surgery, Surgical Specialties and Obstetrics.—Chairman, D. W. Graham, Chicago; Secretary, Ellen H. Heise, Canton; Address, Edmund Andrews, Chicago.

Etiology, State Medicine and Medical Jurisprudence.—Chairman, Geo. W. Webster, Chicago; Secretary, G. A. Zeller, Peoria; Address, W. E. Quine, M.D.

COMMITTEES.

Executive Committee (ex-officio).—Otho B. Will, Peoria; T. J. Pitner, Jacksonville; John B. Hamilton, Chicago; D. W. Graham, Chicago; C. Chenoweth, Decatur; Geo. W. Webster, Chicago.

Committee of Arrangements.—C. Chenoweth, H. C. Jones, Wm. Barnes, E. J. Brown, Wm. M. Catto.

Committee on Publication (ex-officio).—John B. Hamilton, Chicago; Otho B. Will, Peoria; Geo. N. Kreider, Springfield.

Committee on Medical Legislation.—A. B. Strong, Chicago; Walter Watson, Mt. Vernon; B. M. Griffith, Springfield; The President (ex-officio).

Committee on Necrology and Biography.—John H. Hollister, Chicago; Robert Boal, Peoria; John H. Rauch, Chicago.

Committee on Medical Societies.—William O. Ensign, Rutland; James L. Reat, Tuscola; Chas. W. Hall, Kewanee.

Committee on Registration (ex-officio).—Geo. N. Kreider, E. J. Brown.

SPECIAL NOTICES.

1. The usual reduction in railroad fare is promised by the Committee of Arrangements, on the certificate plan. The certificate *must be secured when ticket is bought* at local railroad office.

Failure to obtain the certificate will prevent the delegate from securing the reduction on the return trip.

2. Membership is acquired according to the following:

ART. III.—MEMBERSHIP.

SECTION 1.—All regular resident members of County and District Medical Societies organized in harmony with the spirit and objects of this Society are eligible to membership.

SEC. 2.—They may become members at any time by furnishing the Treasurer or Permanent Secretary a certificate of membership and good standing in such local society, the certificate to be signed by the President and Secretary thereof, and accompanied by one year's dues, $3.00.

Those who desire to attend the meeting who are not already members should bring the prescribed certificate.

3. Members desiring to read papers should notify the officers of the appropriate Sections at once.

4. A detailed program will be issued and mailed to members before the meeting.

5. Delegates to the AMERICAN MEDICAL ASSOCIATION, which meets in San Francisco June 5, will be appointed at this meeting.

The question of change in the Code of Ethics and Constitution of the AMERICAN MEDICAL ASSOCIATION is also to be submitted for instruction of delegates.

A general invitation is extended to all members of the regular profession in the State to attend the meeting and join the Society.

JOHN B. HAMILTON, *Permanent Secretary.*

PUBLIC HEALTH.

The Philadelphia Board of Health Declares Consumption Infectious and Prepares a Circular Showing How to Combat It.

The Sanitary Committee at the meeting of the Board of Health on March 6, made a report to the Board, which recommends the postponement, for the present, of the compulsory registration of cases of tuberculosis, but expresses the opinion that the disease is infectious, and recommends, among other things, that the premises occupied by a tuberculous patient be thoroughly disinfected after death.

The report upon which the committee bases the recommendation is very strong, the recommendation very good, and the action taken conservative and judicious, at the same time showing a careful study of the subject. The report says, in part:

"There are certain incontestible facts which should have great weight in forming a decision. There is also a latitude for doubt as to the practicability and advisability of adopting, at the present time, some of the radical measures proposed for inauguration under official direction.

"Consumption is an infective disease caused by the bacillus tuberculosis. All cases take origin, directly or indirectly, from other cases. A most common mode of infection is by inhaling dry and pulverized tuberculous expectoration. It is a distinctly preventable disease. If all this be true, and it is based upon the most reliable scientific data, it becomes imperative that all known precautions should be employed to prevent the spread of the disease, and, particularly, because it is one of the most widespread of maladies. . . . .

"It would seem wise at this stage of the agitation of the subject to act most discreetly and cautiously, in view of the danger of antagonism of public sentiment (not yet sufficiently educated and aroused to the necessity of official interference), and its intolerance of publicity and official espionage, which would strike terror into the hearts of these unfortunate sufferers.

"There is a middle course that may be pursued at this time with safety and propriety, without its workings becoming offensive, at the same time that they are beneficent, and this course is proposed for adoption. Encourage registration as a preliminary to a future requirement; circulate information with regard to the means of prophylaxis, directly or indirectly; require disinfection when the attending physician so advises, and always after the removal or death of the patient."

Resolutions were submitted and adopted, to the effect that enforced registration should be postponed for the present; that circulars containing rules for the prevention of the spread of the disease be prepared, published and distributed; that physicians be earnestly requested to coöperate with the Board in the distribution of these circulars, and, further, notify it promptly, whenever disinfection is necessary; that a medical inspector visit houses where deaths have occurred and satisfy himself that they have been thoroughly disinfected, and that all cases that may be reported, be recorded in a book to be kept for that purpose.

THE CIRCULAR ON THE MATTER.

The circular on the subject of tuberculosis, which has been prepared and will be distributed, is as follows:

All cases of tuberculous disease of the lungs (consumption) take origin directly or indirectly from other cases. This is now an established fact. Infection, however, is easily provided against if certain simple precautions are taken.

The chief modes of infection are:

First and foremost—By inhaling dry and pulverized expectoration.

This is apt to occur when an ordinary pocket handkerchief is used by a tuberculous person for expectoration. When such a handkerchief is opened the dried expectoration is likely to be pulverized and diffused through the air. Thus it may be inhaled by others as well as by the patient himself, who is likely to suffer from drawing disease germs into portions of lung previously unaffected.

Another and the most common source of pulverized expectoration, is the habit of spitting carelessly and indiscriminately, as on the floor or ground. The expectoration becomes dried and mixed with dust, and then is easily carried into the air, and is breathed into the lungs or swallowed. The habit, therefore, is not merely offensive, but dangerous.

2. By using spoons, cups and other articles of the kind which have not been properly washed after having been used by tuberculous persons.

3. By kissing.

This source of infection is especially to be guarded against in the case of children.

Self-infection may occur, in addition to the ways mentioned, by swallowing the expectoration. The habit is likely to lead, sooner or later, to the infection of the intestines with tuberculous disease.

There are other modes of infection, as, for example, by

consuming the flesh and milk of animals having the disease. But this source is less common, and, as prolonged high temperature destroys the germ, if we cook our food (including milk) thoroughly, there will be no risk of becoming infected in this way.

PRECAUTIONS TO BE TAKEN.

Knowing the channels of infection, we can easily take effective precautions.

1. The sputum must be destroyed and must not be allowed to become dry. A spitting cup or flask containing just enough disinfectant solution to cover the bottom of the vessel should always be used for the expectoration. Out of doors a pocket-spitting flask should be employed.

In the house it would be well to use a pasteboard or paper cup, which should set in a china or metallic holder. This cup with its contents should be burned at least once a day; but if the expectoration is considerable, much oftener.

Pieces of linen or calico about ten inches square may also be carried. These should be used in cases of absolute necessity only, and should be burnt as soon as possible afterward. No piece should be used more than once.

2. Bedrooms that have been occupied by tuberculous patients should be thoroughly disinfected before they are occupied by other persons, and a declaration or assurance on the point should always be demanded.

If the previous occupant of the room never allowed furniture, hangings or carpets of the room to be contaminated with sputum there would be little need of this precaution. But as people ordinarily of cleanly personal habits sometimes show a surprising amount of ignorance or carelessness in this respect, the following points should be insisted on:

a. Carpets, curtains and bed coverings should have been exposed to superheated heated steam under high pressure.

b. The floor and walls of the room should have been properly disinfected. Rubbing with new bread, followed by the application of corrosive sublimate solution (a tablet of seven and three-tenths grains added to a pint of water) is probably the most effective practical method.

There is no danger of infection from the mere breath of a tuberculous patient. The risk is from the dried expectoration. Danger of social intercourse arises from the neglect of the precaution described.

Fresh air is of the highest importance for tuberculous persons. Hot and stuffy rooms have an evil influence over the disease. Except in special circumstances the bedroom window should be kept open by night as well as by day.

MISCELLANY.

Should be Elected.—Dr. Charles L. Thomas of Crawfordsville, Ind., is a candidate for mayor of that town.

Dr. H. C. Wilson of Goodsell Observatory, Minneapolis, Minn., has discovered a new asteroid.

Madison Board of Health.—Dr. Philip Fox has been appointed Health Officer of Madison, Wis., *vice* Dr. W. W. Gill, resigned.

The Doctor Won.—Dr. Cleaver of Council Bluffs, Iowa, was elected mayor of that city March 5.

Louisville Medical College.—There were 191 graduates at the Commencement of Louisville Medical College held March 6.

A Thirteen Class.—There were thirteen graduates at the Annual Commencement of the Northwestern Medical College at St. Joseph, Mo., March 2.

The Health Authorities of San Francisco have decided that the present morgue in that city should be condemned and will recommend that it be located in the basement of the new City Hall.

Kansas Board of Health.—Dr. B. E. Jones of Buffalo, Wilson County, has been appointed a member of the Kansas State Board of Health, to succeed Dr. H. D. Hill of Augusta, whose term expires April 1.

Investigation of American Viticulture.—Dr. Vicente Vera, who was one of the Spanish Commissioners to the World's Fair, is said to have been instructed to examine carefully into the wine-growing industries of the United States.

Cremated at Davenport.—The remains of Dr. Casper Vitzhum of Rock Island, were cremated at the Davenport (Iowa) Crematorium according to his wish expressed just before his death.

Coroner's Office Condemned.—Dr. Keeney, the Health Officer of San Francisco, March 3 reported the city morgue and the coroner's offices therein as unfit for human occupancy. The Board of Health concurred in the report of the Health Officer and declared the building a nuisance.

The Woes of the Montagues.—The "Montague Treatment Company" was sued at Cedar Rapids, Iowa, and on March 7 a verdict was given against them for damages amounting to $1,000 for malpractice.

E Pluribus Quinque.—The State Board of Health of Connecticut recently appointed a committee to examine applicants for license to practice, under the new law. Of eight applicants five were found qualified.

Dean of the Dental Department.—Dr. Clarence V. Rosser has been elected Dean of the Dental Department of the Southern Medical College at Atlanta, Ga. Dr. Floyd McRae was elected President of the Faculty and Dr. L. D. Carpenter Secretary and Treasurer.

Smallpox.—In view of the possibility of the spread of smallpox, several towns have decided to erect pest houses. Negaunee and Menominee, Wis., and Dubuque, Iowa. At the latter place there is a brisk struggle going on as to the location of the institution. No property owner wants it very near him, consequently the erection of the building is yet "in the air" rather than on *terra firma*.

Army Medical Examinations.—The Board of Examiners for candidates for position in the Medical Department of the Army met at the War Department in Washington, D. C., on Monday 12th inst., to make arrangements for the examination of over fifty candidates whose applications had received the approval of the Secretary of War. As certain of the young men live at long distances from the place of meeting of the Board it was planned, in accordance with the views of the Surgeon-General, to have the examination in their physique and general education conducted at the military post nearest to their respective homes, so that no one manifestedly disqualified in either of these respects should be put to the expense of a profitless journey to Washington. The Board divided the candidates into five lots, one of which should be examined weekly, beginning on Monday, March 26. But in view of the proviso in the Army appropriation bill, since then reported to the House of Representatives by its Military Committee, reducing the number of Assistant Surgeons from 125 to 90, it is understood that these arrangements will fall and the order convening the Board be revoked. This will be a disappointment to the candidates. If the Corps be permitted to retain its present membership the Board will meet and examine candidates in September to have its work finished before the commencement of the Army Medical School on November 1; but if the proposed reduction be made, few of those now candidates will realize their hopes of entering the service, for by the time another Board will be required most of them will be inadmissible on account of being over age.

Hospital Notes.

Dr. William P. Northrup has been recently appointed Adjunct Professor of Diseases of Children at Bellevue Hospital Medical College, New York.

Hospital in San Francisco.—The Ancient Order of Foresters have decided to build a hospital in San Francisco, solely for the use of the members of their order.

Dallas, Texas, Hospital.—The Health Officer of Dallas, Texas, has reported that the new city hospital will be ready for occupancy within sixty days.

St. Mary's Hospital, Minneapolis, Minn., was incorporated March 1. The provincial superioress in the diocese of St. Paul and her assistants are members of the corporation, and are to choose ten other members from the Sisters of Charity.

Attempt to Burn a Hospital.—At Topeka, Kan., March 2, an incendiary attempt was made to burn the Capital City Hospital, but the flames were extinguished without material damage. This is the third attempt to burn this Hospital within a short time.

Sleep on the Floor.—An inspection of the Flatbush (L. I.) Hospital by an investigation committee February 21, showed that "the overcrowded condition of the Hospital is reprehensible, and that on the day of inspection 195 patients were found sleeping on the floor. There were no rooms for isolation, and the wards contained more insane patients than they could conveniently accommodate."

Winnipeg General Hospital.—At a meeting of the Board of Directors of the Winnipeg General Hospital, held at the Hospital, February 26, there were present: Wm. Hespeler, President; Judge Bain, Honorary Secretary and Treasurer; Geo. J. Maulson, Thos. Bennett, Dr. Lynch, J. S. Aikins, S. Nairn and Isaac Campbell, Q. C. The accounts for the month of January, amounting to $3,783.53, were submitted and approved for payment. The statements for the month of January were submitted and approved.

Memorial to John Hunter at St. George's.—Mr. Alfred Gilbert, R. A., has undertaken to prepare the memorial to be erected in St. George's Hospital, to perpetuate the memory of the connection of John Hunter with the institution. The subscribers to the fund who, at a numerously attended meeting were presided over by the Earl of Cork and Orrery, K. P., unanimously approved the action of the Executive Committee of the fund, may be congratulated on having enlisted the sympathy and coöperation of a sculptor so eminently fitted for the task. Mr. Gilbert proposes to execute a large bust, probably in bronze, with hands, placed on a suitable pedestal. Hitherto scant justice has been done to John Hunter in sculpture, and the rendering of an artist so original in his treatment as Mr. Gilbert can not fail to be of the highest interest. It is proposed that the bust shall be placed, tentatively, at least, in the central hall of the Hospital. We are informed that a sum of about £20 is still required, and with so admirable a prospect of a worthy monument to the great pathologist and surgeon, there ought to be no difficulty in raising the amount.—*British Medical Journal.*

San Francisco Notes.

At the regular monthly meeting of the San Francisco Medical Society Tuesday, March 14, it was voted to appropriate $1,500 to assist the State Medical Society in entertaining the AMERICAN MEDICAL ASSOCIATION in June.

The Committee of Arrangements for the meeting of the AMERICAN MEDICAL ASSOCIATION have sent copies of the following letter to all regular physicians in the State who are not at present connected with some society recognized by the State Medical Society:

SAN FRANCISCO, CAL., Jan. 10, 1894.

Dear Doctor:—The AMERICAN MEDICAL ASSOCIATION will meet in San Francisco June 5, 6, 7 and 8, 1894. The ASSOCIATION consists of delegates and members. Each State and local society in affiliation with the AMERICAN MEDICAL ASSOCIATION is entitled to send one delegate for every ten members or fraction thereof. Any member of such societies, in good standing, is eligible to membership in the ASSOCIATION, without attending a meeting, on presentation of a certificate of membership in the affiliated society signed by its president and secretary, accompanied by $5.00 annual dues. This entitles him to receive the JOURNAL of the ASSOCIATION.

It will advance the interest of the profession on the Pacific Coast, and will be a fitting evidence of our appreciation of the NATIONAL ASSOCIATION, if we have a large representation at the meeting, and a larger accession to the membership. United effort will accomplish this, and will assure success. We therefore urge every physician who is not a member of a State or local society to become enrolled as such. If, on account of distance or other sufficient reason, it be impracticable to join an existing society, it is desirable that he unite with neighboring physicians to form a local or district society that will obtain recognition from the State society where one exists.

It will facilitate the work of this Committee if you will favor us with the name of your local or district society, its membership and the name of its president and secretary, together with the names of eligible non-members in your vicinity.

A blank application for membership in the AMERICAN MEDICAL ASSOCIATION is enclosed, which may be filled out and forwarded to R. J. Dunglison, M.D., Treasurer, lock box 1274, Philadelphia, or to this office with an additional ten cents to pay money order, when we will gladly attend to it. Membership is a pre-requisite to entitle one to the privilege of reading a paper in the meeting.

Our Midwinter Fair (January to July) is assuming such proportions as will present additional inducements to visit San Francisco, and our hotel and railroad managers are supplementing these by assurances of marked reductions to members of the AMERICAN MEDICAL ASSOCIATION.

We hope the profession on the Pacific Coast will turn out *en masse* and give the ASSOCIATION a royal welcome.

R. H. PLUMMER, Chairman.

THE OFFICIAL REGISTER OF PHYSICIANS AND SURGEONS of California just issued (January, 1894), shows that 260 licenses have been issued to regular graduates, 43 to "homeopaths," and 36 to "eclectics" in 1893, while the deaths in the three classes number respectively 52, 7 and 8.

DR. E. C. COOPER attempted to start a subscription beneficiary scheme in conjunction with his "Waldeck" Hospital, a private institution in San Francisco. His plan was to secure subscribers who would pay an initiation fee of $5 and $1 each month, and thus secure for themselves all the medical attendance they required without further pay. The French and German benevolent societies in this city have similar schemes, but some of the regular practitioners insisted that in organizing a private enterprise on those lines Cooper had stepped entirely outside the bounds of those much-mooted ethics of the profession.

Cooper, however, announced that he had secured as consultants Dr. Henry Gibbons, Dr. W. F. McNutt, Dr. W. S. Thorn, Dr. D. W. Montgomery, Dr. Winslow Anderson, Dr. Pichel and Dr. J. D. Arnold.

Dr. Jules Simon, Chairman of the Committee on Ethics, reported that Dr. Cooper's "consultants" had supposed that they were merely connected with the Waldeck Hospital, and not with the beneficiary scheme. The report further said that when Dr. Cooper found that his scheme was objectionable he had abandoned it at once.

Philadelphia Notes.

THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY held its thirty-eighth annual commencement at noon on the 8th inst., graduating sixty-two students. Professor Henry Liffmann delivered the valedictory address, and President I. Minis Hays conferred the degrees.

THE PHILADELPHIA DENTAL COLLEGE also held its thirty-first annual commencement, on the same day, at noon, at the Chestnut Street Opera House. Prof. L. B. Howell delivered the Faculty address and Dr. Samuel H. Miller, D.D.S. gave the valedictory to a class of seventy, of whom two were women. General James A Beaver, President of the College, conferred the degrees on this occasion.

THE PENNSYLVANIA STATE VETERINARY ASSOCIATION has just closed a successful annual meeting in this city, the sessions being held in the hall of the College of Physicians and Surgeons. Dr. W. Horace Hoskins, President of the Association occupied the chair. This meeting was largely attended and a number of interesting papers were discussed. The next meeting will be held at Harrisburg in September.

THE D. HAYES AGNEW MEMORIAL WARD of the Hospital of the University of Pennsylvania will probably be built during the coming summer. It is estimated to cost over a hundred thousand dollars, of which the greater part has been collected, although the opportunity of contributing to this memorial is still open to those desirous of joining in this good work. It is in the form which Dr. Agnew himself would have chosen, as it is known that he was averse to the

posthumous fame to be gained by marble busts, or memorial shafts, which he regarded as monuments to vanity.

THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA have recently received a large sum of money from Messrs. Alfred C., William W., and Chas. C. Harrison for the purpose of erecting a new chemical laboratory, which will be called the "John Harrison Laboratory of Chemistry." The donors are the grand-children of Mr. John Harrison now deceased, who was a pioneer in industrial chemistry in this country, and one of the Trustees of the University. Mr. Harrison, who was on intimate terms with Priestley, was influential in securing his election to the Chair of Chemistry in the University as the successor to Dr. Rush.

APPENDICITIS.—As a contribution to the discussion on appendicitis now going on in the journals, it may be mentioned that Dr. T. G. Morton successfully operated upon an adult patient who had had eight attacks. The operation was done in the interval when no local signs of inflammation were present. In another case that of a boy 12 years of age living out of the city, Dr. Morton operated successfully although he had with him only the instruments contained in a small pocket case; there being no time to send home for his instruments and antiseptic outfit. Dr. Morton has observed in a number of cases of acute appendicitis, that temporary glycosuria occurs, the cause of which has not been very clearly made out.

PROF. J. M. DA COSTA delivered his second and final lecture, before the medical students of the University of Pennsylvania, on the 6th inst. His subject was "Lithemia," which he declared to be a modified form of gout, but quite distinct in its manifestations from the latter disease. It is the form which gout particularly assumes in this country. It may be acquired by over-eating and deficient exercise, or it may be inherited from gouty ancestors. Vertigo is a prominent symptom; depression of spirits is another. In the treatment, he advised the use of very little meat and avoidance of sugar and alcohol, (except that elderly subjects might take with their meals, whisky and water, or a sound claret). Carbonate of lithia is a useful remedy which may be combined with nux vomica. Laxatives, especially salines are advisable.

THE COUNTY MEDICAL SOCIETY devoted its meeting of February 28, to the consideration of papers on "American Grip," the "Ancient Lore of Influenza," and "Influenzal Neuritis." Dr. Carl Seiler maintained his view that American grip was distinct from the Russian influenza. He proposed the name of "epidemic myxœdema" for the new disease, which is distinguished from influenza by the absence of catarrhal symptoms and of continued fever. The most prominent lesion of American grip is submucous infiltration of the mucous membranes, especially occurring in the throat often threatening suffocation, and patches of false membrane may be seen on the tonsils. The nervous symtoms are very marked, including neuralgiac and myalgic pains in the head and extremities. He had found so much benefit from the use of benzoate of sodium in these cases as to regard it as a specific. Quinin he pronounced useless, even positively injurious by increasing the cerebral symptoms.

Erratum.—In the editorial article on "Medical Education in the United States," printed in the JOURNAL of March 17, occurs the following paragraph:

"In 1880 the average duration of the lecture term was a fraction over 22 weeks; of the 56 colleges examined, 38 had terms of less than 24 weeks and 18 had terms of 24 weeks or more. During the current sessions, 1893-94, the average duration of the lecture term is 28.19 weeks; only 10 schools have terms of six months or more."

The last sentence should read, as originally written:

During the current sessions, 1893-94, the average duration of the lecture term is 28.19 weeks; only 10 schools *have terms of less than 24 weeks, while 126 schools have terms of six months or more.*

Gentlemen preserving their JOURNALS, are requested to refer to this correction on the article itself.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from March 10, 1894, to March 16, 1894.

Capt. WALTER W. R. FISHER, Asst. Surgeon U. S. A., is granted leave of absence for six months, to take effect on or about May 1, 1894, with permission to go beyond the sea.

Major JOHN H. BARTHOLF, Surgeon U. S. A., retirement from active service, March 13, 1894, by operation of law, under the provisions of the Act of Congress approved June 30, 1882, is announced. By direction of the President.

First Lieut. PAUL F. STRAUB, Asst. Surgeon U. S. A., is relieved from duty at Ft. Riley, Kan., and ordered to report in person to the commanding officer, San Carlos, Ariz., for duty at that post, relieving First Lieut. HARLAN E. MCVAY, Asst. Surgeon U. S. A. Lieut. MCVAY, on being relieved by Lieut. STRAUB, will report in person to the commanding officer, Whipple Bks., A. T., for duty at that post.

A board of officers to consist of: Lieut.-Col. CHARLES R. GREENLEAF, Deputy Surgeon-General U. S. A; Lieut.-Col. ALBERT HARTSUFF, Deputy Surgeon-General U. S. A.; Major BENJAMIN F. POPE, Surgeon, is appointed to meet at the call of the President thereof, at San Francisco, Cal., for the examination of Capt. WILLIAM R. HALL, Asst. Surgeon, with a view of determining his fitness for promotion, as contemplated by the Acts of Congress approved Oct. 1, 1890, and July 27, 1892. Capt. HALL will report in person to the President of the board for examination at such time as he may designate.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending March 17, 1894.

Surgeon L. W. STRATLING, ordered to the U. S. S. "Alert."
Surgeon E. J. DERR, ordered to the U. S. S. "Raleigh."
Asst. Surgeon E. M. SHIPP, ordered to the U. S. S. "Raleigh."
P. A. Surgeon W. C. BRAISTED, ordered to hold himself in readiness for U. S. S. "Columbia."
Surgeon G. E. H. HARMON, from the U. S. S. "Yorktown," and three months' leave.
P. A. Surgeon G. P. LUMSDEN, ordered to the U. S. S. "Yorktown."

LETTERS RECEIVED.

(A) Armitage, T. L., Lilly, Pa.
(B) Brown, Philip King, San Francisco, Cal.; Barck, C., St. Louis, Mo.; Battle & Co., St. Louis, Mo.; Beck, Carl, Chicago, Ill.; Baxtor, W. F., Bangor, Me.; Bright, J. W., Rebersburg, Pa.; Bennett, T. J., Austin, Texas; Brother, Ferd, Beatrice, Neb.; Blakiston, P., Son & Co., Philadelphia, Pa.
(C) Cleary, W. P., New York, N. Y.; Cain, J. S., Sewanee, Tenn.; Comegys, C. G., Cincinnati, Ohio; Cochran, Jerome, Montgomery, Ala.; Columbia Chemical Co., Washington, D. C.
(D) Dubring, Louis A., Philadelphia, Pa.; Dunwody, J. A., Colorado Springs, Colo.; Dunn, Ira J., Erie, Pa.; Dunglison, R. J., Philadelphia, Pa.
(E) Elder, E. S., Indianapolis, Ind.; Ewing, F. C., St. Louis, Mo.
(F) Ferguson, F., New York, N. Y.; Fernandez, A. M., New York, N. Y.; Finley, Robt. P., Altoona, Pa.
(G) Graves, F. C., Bridgeport, Conn.; Gardner, R. W., New York, N. Y.; Gamble, W. E., Chicago, Ill.
(H) Haven, D., Youngstown, Ohio; Hengst, D. A., Pittsburg, Pa.; Hummel, A. L., Philadelphia, Pa.; Hewins, W. A., Chandler, Ind.; Hughes, Don C., Woodlawn Park, Ill.
(J) Jenkins, J. F., Tecumseh, Mich.; Johnson, H. P., La Crosse, Wis.; Jelks, Jas. T., Hot Springs, Ark.
(K) Knox, C. S., W. Superior, Wis.; Kratz, Paul, Louisville, Ky.
(L) Labordine Chemical Co., St. Louis, Mo.; Leatherman, D. J., Williamsburg, Pa.
(M) Magruder, G. L., Washington, D. C.; Meyrowitz, E. B., (2) New York, N. Y.
(N) Northrup, Wm. Perry, New York, N. Y.; Northwestern University, Evanston, Ill.
(P) Parke, Davis & Co., Detroit, Mich.; Phenique Chemical Co., St. Louis, Mo.; Putney, W. G., Serena, Ill.; Petty, J. T., Washington, D. C.; Pearman, J. T., Champaign, Ill.
(R) Rowe, S. B., St. Louis, Mo.; Reece, Madison, Abingdon, Ill.; Rushing & Pickett, Nevada, Texas; Ryno, P., Benton Harbor, Mich.; Ryan, C. B., Cincinnati, Ohio.
(S) Smith, Alfred, Minneapolis, Minn.; Souchon, Edmond, New Orleans, La.; Sheldon, Chas. S., Madison, Wis.; Smart, Chas., Washington, D. C.
(T) Trimble, J. R., Baltimore, Md.; The Rosbach & Franz Josef Co., New York, N. Y.; The Bovinine Company, New York, N. Y.; Truax, Chas., Greene & Co., Chicago, Ill.; The Dollber-Goodale Co., Boston, Mass.
(V) Vetter, J. C., & Co., New York, N. Y.
(W) Wood, William & Co., New York, N. Y.; Wanzer, C. M., Zanesville, Ohio; Woodbridge, J. E. Youngstown, Ohio; Wingate, O. U. B., Milwaukee, Wis.; Whitelock, T. W., Jonesboro, Tenn.

PAMPHLETS RECEIVED.

Pigmentation of the Whole Surface of the Body, occurring suddenly during the Treatment of a Case of Psoriasis. By A. E. Carrier, M.D.
Tenth Annual Report, Margaret Pillsbury General Hospital, Concord, N. H., 1893.
Treatment of Depressions in the Skull of the New-born. By David D. Jennings, M.D.
Achievements of Sanitation, Measured by Vital Statistics. By Geo. E. Willets.
Buffalo Lithia Water—Medical Opinions and Clinical Reports. By E. C. Laird, M.D.
The Cause and Cure of Malignancy. By Wm. Thornton.